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ABSTRACT

The training consortium described in Vol. 1 of this report (SP 005 047) determined national needs for RDD&E personnel. The training program designed to meet these needs has three areas of objectives: materials development, training, and program development. Forty-eight training modules would be used individually in various agencies for evaluating and training approximately 100 individuals by January 1973 and 350 individuals by July 1974. The full system, which should be operational by January 1974, consists of four subsystems and 48 instructional modules with an additional internship experience lasting from 1 to 6 months. The program is designed to meet the needs both of college students and presently employed personnel in educational agencies. It utilizes six interrelated steps: 1) context analysis, 2) conceptual design, 3) product design, 4) pilot test, 5) field test, and 6) marketing and diffusion. The diagnostic subsystem has been designed to assess both agency and individual needs, accomplished by a number of interview or questionnaire devices. Both placement and management subsystems will be developed in order to provide the necessary monitoring of trainees and their effective placement at the end of the program. Evaluation will provide more exact data on the possibilities of diffusion of the program, and a final report covering all aspects of development, evaluation, cost, and diffusion recommendations will be made at the completion of the operational training system. (SP 005 047 and SP 005 049 are related documents.) (MBM)

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RFP 70-12: A DESIGN OF NEW PATTERNS TO TRAIN RESEARCH, DEVELOPMENT, DEMONSTRATION/DISSEMINATION, AND EVALUATION PERSONNEL IN EDUCATION

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FINAL REPORT

VOLUME II:

Scope and Developmental Process of the Training Program

December 18, 1970
Southwest Educational Development Laboratory
Austin, Texas

SP005048

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December 15, 1970

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Dear Dr. Egermeier:

Submitted herewith is a proposal to develop and implement a training system which will fill identified national personnel needs for educational research, development, demonstration/ diffusion, and evaluation. Presented in three volumes, this proposal and final report of the planning phase includes Design of the Training Program (Vol. 1), Scope and Developmental Process of the Training Program (Vol. II), and Budget-Cost Analysis for Training Program (Vol. III).

The first volume contains a comprehensive summary of the activities of the training consortium led by the Southwest Educational Development Laboratory and a review of a national needs survey conducted by the consortium to determine training priorities. It also contains a description of a proposed training system to fill identified national needs.

Volume II outlines the consortium's plans for designing training modules, pilot testing them, and utilizing them. Volume III contains a statement of the cost of developing the proposed training program.

The delivery of this report on this date concludes the first phase of this project. The consortium members during this initial phase have demonstrated their ability to work together productively. This cooperative framework will continue to be an asset in the implementation of this proposal.

Very sincerely,

Edwin Hindsman

Edwin Hindsman
Executive Director

EH:ap

BRIEFING SUMMARY

New Design for Training

Prime contractor for operational phase:

Southwest Educational Development Laboratory

Project director for operational phase:

Dr. Walter F. Stenning
Director of Training Systems Design

Principal participants in operational phase:

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13. Pennsylvania State Department of Education	Dr. Paul Campbell
14. United States Research and Development Corporation	Dr. Frederick Haddad

Major manpower needs being addressed: The proposed training system is designed to train educational research and research-related personnel in four essential functions: Research, Development, Diffusion, and Evaluation. The seven primary skill areas to be addressed relating to the functions of RDD&E personnel in education are:

1. Conceptualizing issues and processes in education
2. Designing techniques to carry out educational goals
3. Setting educational objectives
4. Measuring and evaluating educational objectives
5. Summarizing and communicating outcomes
6. Implementing outcomes
7. Identifying and incorporating attitudes, values, and practices of minority groups in the educational process

Unique features of rationale, content, and process of the proposed design: To determine the existing manpower needs for research, development, diffusion, and evaluation personnel in education, a national survey was made of a representative sample of agencies and institutions. Included were research and development centers at colleges and universities, research institutions and agencies, state departments of education, schools and school systems, and business and industrial organizations. A systems approach was selected as the most effective means for developing a training program.

The system selected to develop the proposed training program is the Developmental Process. In use for the past five years at the Southwest Educational Development Laboratory, this process provides efficient ways for formulating, developing, testing, and evaluating educational products and learning systems. To insure the success of a system, there are six interrelated stages through which that system must progress. These include (1) context analysis, (2) conceptual design, (3) product design, (4) pilot test, (5) field test, and (6) marketing and diffusion. After three and one-half years of progress through each stage of the developmental process, the proposed training program is anticipated to be a complete and effective system.

During the context analysis and conceptual design stages, the training system was divided into four subsystems: diagnosis, training, placement, and management. The diagnostic system will be based on an in-depth analysis of organizational needs and goals, individual needs and goals as they relate to that organization, and a series of diagnostic tests. From this information a diagnostic profile will be created and used to develop individual, modular, instructional units. In this manner the training subsystem will provide flexible and appropriate training material for each agency and individual to be trained. An exportable and individually-tailored training package will afford maximum effectiveness for the trainee and his agency and a minimum of disruption to normal work patterns in the established organizational setting.

The management subsystem will coordinate all elements of the training system. Retrieval programs for the subsystem, initially developed and tested at the Santa Clara Center for Planning and Evaluation, will provide information on agency and individual diagnoses and followup evaluation material. The placement subsystem will retain information on agencies and institutions interested in trainees, trainees who have completed the program, internship sites, and evaluation data for trainees and their supervisors. The interaction of these four subsystems will lend strength to the training program as a whole and provide an appropriate structure for the effectiveness and control of the system.

Specific course content will be aimed at providing knowledge and developing skills to improve trainees' ability to handle the most pressing educational problems. Studies of different cultures and socioeconomic levels, of relationships between the school world and the larger community, and of environment and ecology, as well as explorations of human relations, teaching methods, and the effects of poverty and deprivation will afford a broad-based approach for developing new skills. Trainees will also be taught about the processes of development of educational products and methods, systems approach and analysis, the processes of change, the aspects of self-improvement, and the elements of planning and management.

In summary, the proposed training system will incorporate a wide variety of institutional and individual needs. Through the use of modular instructional units, the most flexible and exportable training can be achieved. Internship experiences, where applicable, will be offered to give the trainee an opportunity to practice new skills in an organizational setting similar to that of the agency for which he has trained. Individuals who have completed training will be placed in accordance with their competency levels and skills, as revealed by the information on the diagnostic profiles. Built-in mechanisms for evaluation and revision will assure the most suitable and efficient means for the development of training in relation to the goals outlined by the agency. Finally, the proposed training program will produce competent, professional individuals, equipped with the skills necessary to meet the demand for educational research and research-related personnel in education.

ABSTRACT FOR VOLUME II

As outlined in Volume I, the training consortium for RFP 70-12 has determined national needs for RDD&E personnel. To meet these needs, a training program has been designed around individualized, modular instruction. A systems approach to training has been adopted that employs four subsystems: diagnosis, training, placement, and management.

The objectives for the program are stated in three areas: materials development, training, and program development. The objectives of materials development are to design diagnostic procedures for assessing agency and individual needs for RDD&E skills. Forty-eight training modules, or units, of instruction in seven key skill areas would provide up to 251 hours of instruction; placement and management subsystems would provide monitoring and placement of trainees.

The objectives for the program are to train in needed skill areas. Forty-eight modules would be used individually in various agencies and institutions for purposes of evaluation and for training approximately 100 individuals by January 1973, for purposes of service testing the subsystems and finally, to train 350 individuals by July 1974, for purposes of field testing the entire training system. Program development objectives are to evaluate the separate components and modules of the four subsystems by April 1972, and all subsystems as part of the full, operational system by January 1974.

The training program has been designed within practical limits of financial support. The proposed program consists of the four subsystems and actual training components consisting of 48 instructional modules. An additional internship experience lasts from one to six months.

The proposed program is designed to meet the needs of two general groups: college students and presently-employed personnel in educational agencies. Students often have valuable academic or formal training but little applied training, while agency personnel have valuable on-the-job skills but less formal skill training in the proposed areas. The training program, therefore, is designed to meet varying demands for additional skill competencies at educational agencies and universities.

In order to construct the most viable program, the training consortium has utilized a developmental process consisting of sequential steps for the development of educational products. This process utilizes six interrelated steps: (a) context analysis, (b) conceptual design, (c) product design, (d) pilot test, (e) field test, and (f) marketing and diffusion. The developmental cycle produces an educational product through a systematic process.

The diagnostic subsystem has been designed to assess both agency and individual needs and competencies in RDD&E. This assessment is accomplished by utilizing a number of interview or questionnaire devices to be answered by both the institution and the prospective trainee. Following assessment, a written report is made to the agency which will then decide if training is necessary. In the case of students, assessment of needs will elicit recommendations for further skill development by combinations of modular and internship training. Developmentally, this subsystem will have a prototype by January 1972 and a refined model by 1973.

The training subsystem seeks to provide the necessary combinations of modular training and internship experience. Forty-eight modules are proposed to be developed. Under current funding a maximum of 251 hours of modular training would be available with the addition of student internships of up to six months.

Both placement and management subsystems will be developed in order to provide the necessary monitoring of trainees, their progress and their performance, plus the mechanisms to place the trainees in a position to make most effective use of the training received.

It is expected that approximately 550 individuals will receive some combination of modular training and on-the-job internship experience. Evaluation during the development of the training system will suggest further areas for modular or intern elaboration and provide more exact data on the possibilities for diffusion as either self-contained instructional units or as a complete training program. A final report, covering all aspects of development, evaluation, cost and diffusion recommendations, will be made at the completion of the operational training system.

VOLUME II

SCOPE AND DEVELOPMENTAL PROCESS OF THE TRAINING PROGRAM

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INTRODUCTION

The training consortium led by the Southwest Educational Development Laboratory has developed a systems approach to training which focuses on skills needed to carry out research, development, diffusion, and evaluation projects in education. Specifically, the proposed training system addresses the needs of two broad groups of individuals. The first group, staff of all types of educational agencies, includes individuals who are familiar with one or more phases of research, development, diffusion, or evaluation, but who need additional training and practice in needed skill areas. The second group includes students in education and education-related fields. These individuals have extensive academic preparation but need to acquire and practice additional skills in order to function as competent research, development, diffusion, and evaluation professionals.

The proposed training system would focus on developing crucially needed skills that are currently low in availability. A detailed resume of the identification of these high-need, low-availability skills is contained in "Rationale for a Training Design," Volume I of this final report (pp. 6-21).

In the proposed training system, diagnoses of agency and individual needs would serve as the basis for a course of study to be carried out through modular, self-contained packages composed of written, audio, and visual materials. These modular packages would be used at the individual's place of employment or study and during his normal working routines. Upon completion of the individualized program of instruction, he would participate in a structured internship experience of one to six months. This internship would expand the individual's knowledge and the skills developed through the training program in a practical work situation that would approximate his future career activities.

The proposed training system has been planned as a 42-month operation to occur in three separate phases. The first phase primarily would develop the various components for the training system. In this period appropriate diagnostic procedures, training modules, handbooks for internship experiences, placement procedures, and management procedures would be developed. In each phase evaluation would be used to determine the adequacy of components in reaching specified objectives. These components would be revised following the evaluation.

During the second phase the components would be combined into several subsystems to be used by institutions in training staff members and students. Evaluation would determine the effectiveness of this training, leading to revision if necessary.

The third phase would be to use the entire training system on a nationwide basis with approximately 350 trainees. Of these trainees 115 would spend between one and six months in an internship setting away from their usual place of employment or university. Another 115 would intern at their own agency or university and an additional 115 trainees would experience no internship at all. Evaluation of the system based on terminal performances of the trainees would be carried out.

The second two phases of the training program involve the following geographic areas: Pennsylvania, Georgia, Louisiana, Texas, Arizona, Utah, and New York. Most trainees would be drawn from psychology, education, sociology, and other academic disciplines. All would have the common denominator of previous experience or current commitment in some phase of research, development, diffusion or evaluation.

At the conclusion of the proposed project, the training system would be ready for nationwide distribution.

OBJECTIVES

The major objectives to design the training system and make it operational are described below. These objectives are grouped into three areas:

- Materials Development, focusing on the construction of the components of the training system;
- Training RDD&E Individuals, focusing on the training that would occur during the development of the training system;
- Program Development, focusing on the evaluation of the components, subsystems, and system during the development of the training system.

Objectives for Materials Development

1. To develop diagnostic instruments to assess agency needs and individual strengths and weaknesses for RDD&E training.
2. To develop 48 training modules of a self-contained, self-instructional nature, composed of approximately 250 hours of training time.
3. To develop placement files and follow-up information in order to maintain records of each trainee.
4. To develop a management information system (MIS) which would account for the data on each agency and on the progress of each individual during training.
5. To develop handbooks and guidelines for trainees and supervisors to be used in the internship experiences.

Objectives for Training RDD&E Individuals

6. To train a large number of individuals with 10 or more hours of modular training during the product development phase in order to:
   a. raise their skill level and
   b. provide information for component evaluation and revision.
7. To train 150 individuals with 50 to 250 hours of training based on agency and individual diagnosis.
8. To train approximately 350 individuals with 50 to 250 hours of training using the entire system, and to provide, where appropriate, an internship experience of no more than six months.

Objectives for Program Development

9. To evaluate the separate components and modules for the diagnostic, training, placement, and management subsystems.

10. To evaluate the four subsystems of diagnosis, training, placement, and management.

11. To evaluate the entire training system using approximately 350 trainees from agencies and universities located throughout the United States.

The following is a detailed explanation of each objective of the proposed training program.

1. Diagnostic instruments. Various agencies and institutions have different internal structures, varying contexts of operation, different defined goals, and therefore a number of different needs and uses for training. The individuals within those agencies and institutions also bring with them a variety of experiences, both professional and non-professional, and they have had varying amounts of academic educational background and formal and informal training. To provide a true picture of these agency needs and to assess individual strengths and weaknesses, a series of diagnostic instruments will be developed. These instruments will be in the form of diagnostic tests, agency and individual interviews, and questionnaires. They will be designed to measure and evaluate the extent and nature of training desired by a particular agency or institution. This information will be used to design individual instructional packages for that agency.

For the individuals to be diagnosed, a measure and evaluation of their educational background, professional competencies, and weaknesses will be made with respect to the needs and goals as defined by the agency. In the case of students their life goals and career plans will be identified. Individual entry levels will be determined from this information.

When the diagnosis has been completed, the information will be presented to the agency or institution along with a number of recommendations for training. If the organization chooses to participate in the training program,

this information will be used as a basis for the evaluation of the training relative to the individual and agency needs that have been defined.

2. Training modules. Forty-eight self-contained, self-instructional units will be developed to provide the background materials and the ability to perform specific skills in research, development, diffusion, and evaluation for the individuals to be trained. By the end of the first year, approximately 251 hours of training time will be prepared for agency and institutional use. At the end of the second year these modules will have been pilot tested in a selected number of participating consortium-member agencies. During the third year, after revisions and improvements, the training units will be ready to be tested on a larger number of individuals within agencies and institutions of a national sample. Following the field test, the modular units will be revised and prepared as individual and exportable materials which can be utilized by other organizations throughout the United States.

3. Placement and follow-up information. Records of the individual trainee's background, skills, and training progress will be maintained. After one has completed training and has been located in an internship experience, it will be necessary to record the nature of his position in that agency and the time he has spent there after training. Even if the individual moves from training directly into an employment setting (i.e., with no internship), it will be necessary to document his experiences as a part of his permanent record.

At the agency level, a file will be kept of those organizations desiring individuals who have completed the training. These agencies and institutions may be participants in the training or good prospects for the employment of graduates of the training program. By coordinating the information on the individual trainees and the information on the agencies and institutions

utilizing RDD&E personnel, appropriate and suitable placement can be made with respect to the individual and the RDD&E skills he has obtained.

Finally, post-employment evaluations of former trainees should be kept in the program placement files as a basis for the evaluation of the training with respect to individual successes and failures. The placement file evaluation information would be used in modifying the training system.

4. Management Information System (MIS). A system will be developed to analyze all the data regarding individual and agency diagnosis, training units completed, internship experiences, and agency and individual evaluations of the training experiences. This information will be available for cross-referencing into descriptive and inferential information upon which decisions can be made. The purpose of this management information system would be to provide project managers with systematic feedback regarding local needs and trainee progress, both in content and internship experiences.

MIS will be the system through which the control and dissemination of the information received on the agencies and individuals will be effected. Diagnostic material on an agency and an individual must be matched with training options and general administrative requirements such as available time, cost, and location of training. During training, evaluation of trainee progress must again be matched with agency and individual requirements and needs to insure the availability of current status reports whenever needed.

5. Internship guidelines. Materials for the internship experience will be developed for the agency, the supervisor of the intern, and the intern. These materials will be in the form of guidelines, handbooks, and manuals and will be written so that the participating agencies and supervisors are able to match most effectively the modular training of the individual with on-the-job experience. The intern program will be designed to further expand and develop the skills acquired by the trainee during modular

training and will require agency needs and facilities commensurate with the intern's potential. The skills and background learned through the individual training modules, therefore, would receive reinforcement and practical application in the internship experience.

6. Training Individuals with 10 or more hours. A large number of individuals will be trained during the first year of the program with at least 10 hours of modular courses. This will be a feasibility pilot test of the training system components as individual products. Selected sites will be chosen to test, evaluate, and amend the individual products under the close supervision of the developers of the individual modules. This will enable improvement of the modular units and will enhance their potential value in context application.

The individuals who will participate in this phase of the operation of the training program will be given an opportunity to raise their skill levels. They should be able to use and apply in their respective agency and institutional settings the information and skills learned. At the end of the feasibility pilot test, information will be assimilated for component and modular evaluation, improvement, and revision. The training modules will then be refined according to the results of this feasibility pilot test until they meet the criteria defined for optimal use in later stages.

7. Training 150 individuals with 50 to 250 hours. The 48 individual modular units of training will be further tested on 150 individuals during the second year in the operation of the training program. These modular units comprise an entire learning system and must therefore undergo a service test, the second phase of the pilot test. Steps will be taken to integrate the subsystems of the training program into a whole system by integrating the components to the extent possible. By providing 150 individuals with 50 to 250 hours of modular training, it will be possible to

test those modules of the training system which meet criteria individually, as well as sequentially. During the operational phase, the elements of the entire system will be merged into a fully integrated unit.

The training of the 150 individuals during the second year will be based upon agency and individual needs as diagnosed. In this way, both the diagnostic and the training subsystems will function together to determine the most effective training for each individual. It will provide the personnel for the service test as the final aspect of pilot testing. After revisions and refinements of the training system, the individual modular units will be ready to undergo field testing in the third year of operation.

8. Training 350 individuals with 50 to 250 hours. This number of individuals will be trained during the main field test of the entire operational training program. Large scale testing of the operational training system will take place under the supervision of the participating consortium member agencies. This field test will determine the utility and effectiveness of the program and will facilitate marketing and diffusion of the training system. The effectiveness, cost, endurance, and potential of the training system will be measured and evaluated by determining its effects upon the individuals which are trained, the agencies who participate in training and the internship experiences, and various other factors present in the natural environment of the system. Modification and refinement of the training system as a whole will be effected following this field test, and the system will be prepared for use on a nationwide basis following the third year of its operation.

9. Evaluation of components and modules. Evaluation of the components and individual modules of the training system will be made following their design. This evaluation will be important to the development and testing of the components for each of the four subsystems. Valid and reliable

evaluation instruments will provide information on whether terminal objectives are being achieved and on whether the design of the subsystems is viable in an operational sense. This evaluation is scheduled to take place from February, 1972, to April, 1972.

10. Evaluation of subsystems. Evaluation of diagnosis, training, placement, and management subsystems, respectively, will occur following their design. This evaluation will provide the basis for operationalizing the subsystems and integrating them into the system as a whole. By the end of the second year the subsystems will be operational and ready for incorporation into the main field test phase.

11. Evaluation of entire training system. Evaluation of the training system as a whole will take place following the main field test. Recommendations and revisions for the system will be made on the basis of the 350 participants of the field test representing agencies and institutions across the nation. A comprehensive report will be made following testing. Procedures will be developed for improving the operation of the system. Using the information from this evaluation, plans will be made for marketing and diffusing the training system.

DEVELOPMENTAL PROCESS *

The steps toward operationalizing the proposed training program have evolved from a systematic process used by the Southwest Educational Development Laboratory. With some modifications, this developmental process is being used as the basis for operationalizing a viable program for training in research, development, diffusion and evaluation.

The developmental cycle has already been used in conceptualizing the training program. While the expected end-result of development is a "product," the cycle also involves process and system development. As outlined in Volume I (pp. 78-82), this cycle of development has six interrelated stages: (1) context analysis, (2) conceptual design, (3) product design, (4) pilot test, (5) field test, and (6) marketing and diffusion. (See Figure 1.) In the following section, each of these stages will be discussed in relation to the operation of the training system and its four subsystems:

- diagnosis
- training
- placement
- management

As a product moves through the six stages, there is a considerable amount of cycling back to previous stages. The progression is not strictly linear in that work on a product may enter more than one stage simultaneously, e.g., some product design may be underway well before conceptual design is completed. Additionally, problems encountered in meeting the criteria at one stage sometimes cause the developers to return

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Note: *This discussion of the developmental process is modified from the Southwest Educational Development Laboratory's Contractor's Request for Continuation Funding, December 1, 1970 - November 30, 1971. Austin: SEDL, 1970.

FLOW CHART OF DEVELOPMENT PROCESS

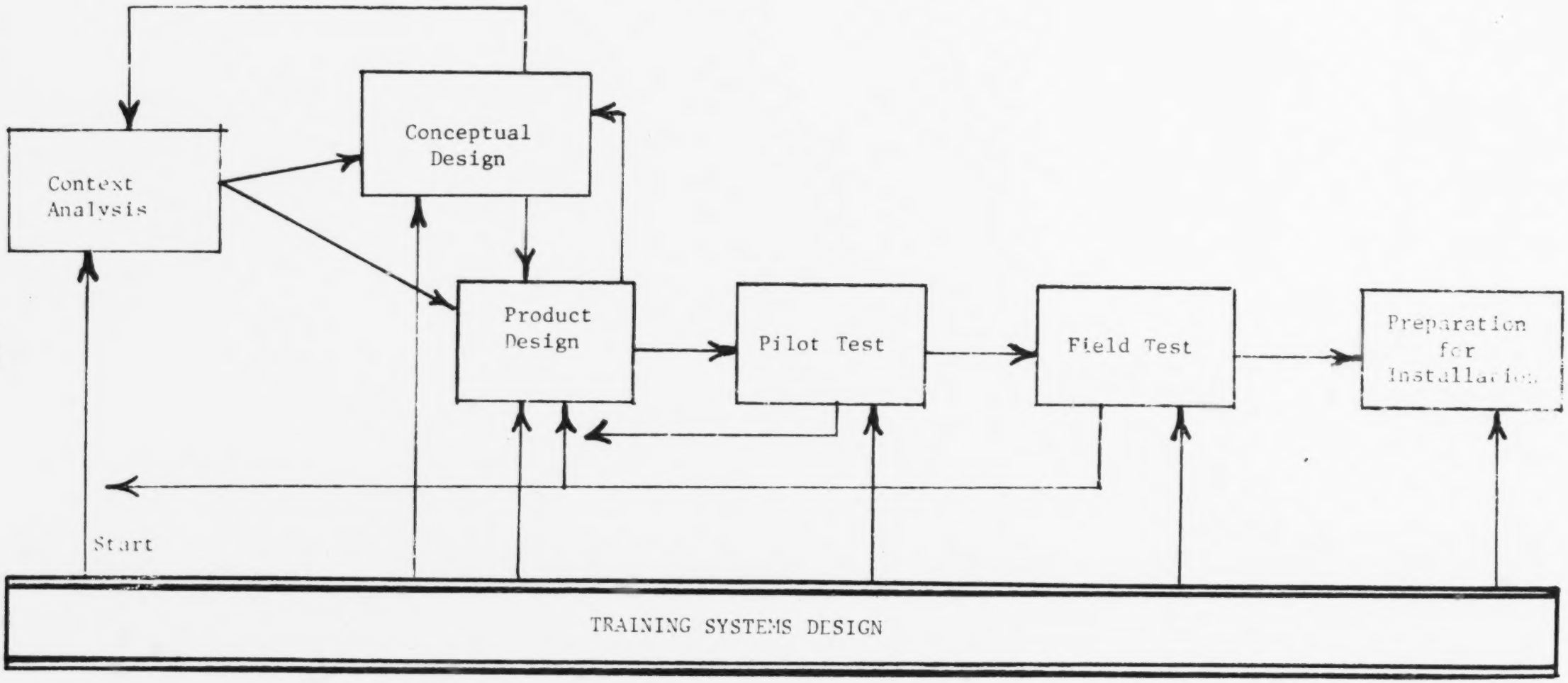


FIGURE 1

to a previous stage for clarification and guidance in answering current questions.

The product development cycle incorporates the entire gamut of activities in the formulation, development, testing and evaluation of an educational product or a learning system component. Developmental products cycle and recycle within each of the six stages of the process until they are sufficiently refined to progress to the next stage. If development and refinement are not progressing as scheduled, products may cycle back to a prior stage for another preparation, refinement, and re-evaluation. Some products may skip an entire stage; perhaps two stages can be conducted simultaneously, and products which are partially developed elsewhere may be introduced into the development cycle at a stage other than the initial one.

In the following charts (Figures 2-6), decision-making points in the development process are indicated. Although these are the most critical decision-making points, continuous communication with decision makers is important throughout the process, since product developer's failures to identify and communicate with key decision-makers frequently results in a product's failure. At the outset, it is imperative that the actual decision-makers be identified, that there be sufficient information about their needs and preferences, and that communication be maintained throughout the process of development. The decision makers in the training program would be the consortium representatives and the National Review Committee members.

It is important to remember that as individual products are developed, they go into the subsystems and then into the total system.

Stage One: Context Analysis

Context analysis is concerned with performing analysis and providing information on the problem under consideration. The objectives of context analysis are to define the problem, to establish its parameters, to consider possible solutions, and to identify the strategy or general approach which appears to be the best. (See Figure 2.) This stage was carried out as part of the Design effort and is detailed in Volume I (pp. 6-22).

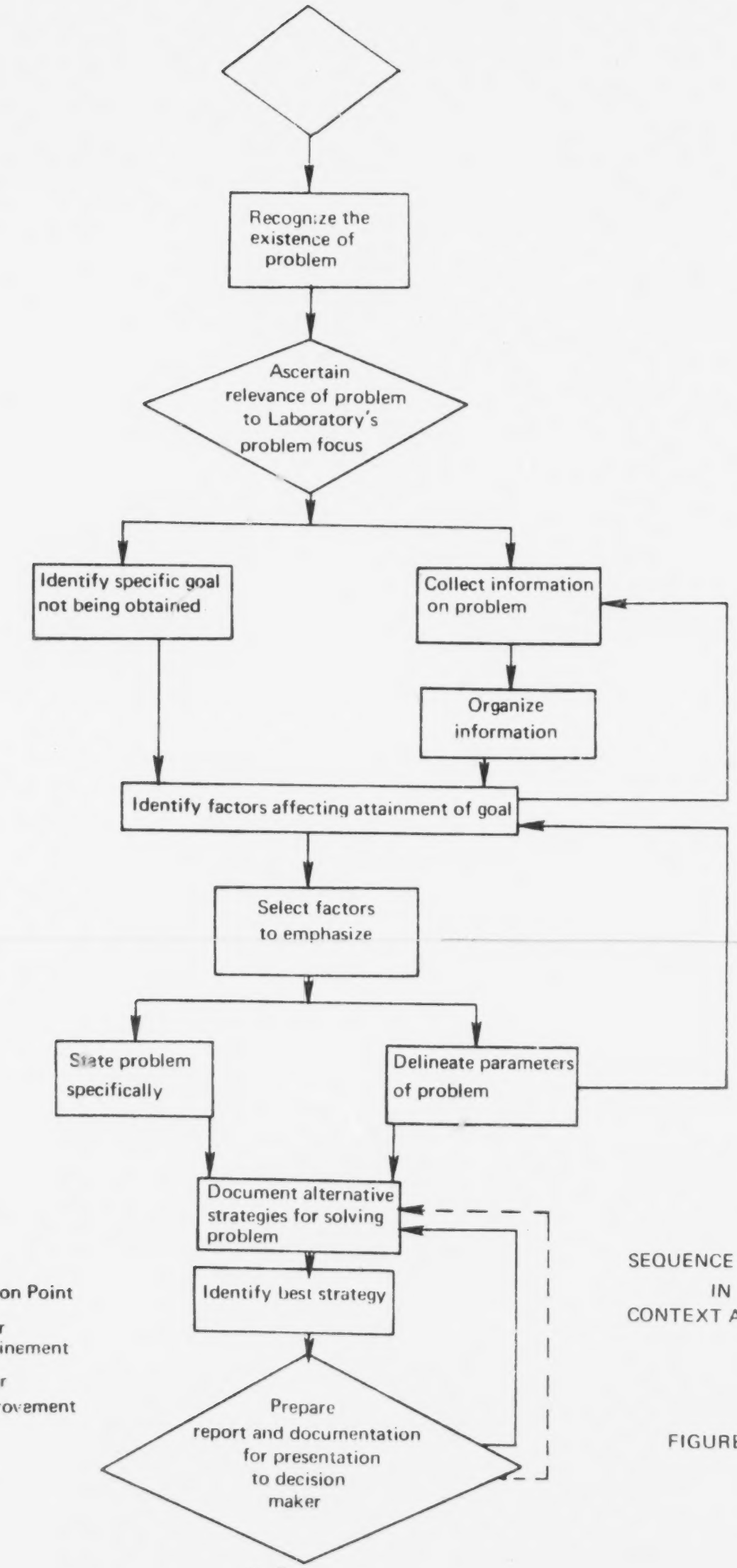
Thus, during its context analysis stage, the consortium was concerned with determining needs for RDD&E personnel and skills involved in RDD&E functions, with identifying parameters of RDD&E, and with identifying strategies for implementing a training program to meet RDD&E demands.

The following steps were included in the process of context analysis:

- recognition of needs in RDD&E
- realization that the problem of needs in RDD&E is relevant to the problem focus of the consortium
- identification of a specific goal for the consortium, i.e., a training program for RDD&E personnel
- collection of existing information about the needs and training programs for RDD&E personnel
- organization of the information
- identification of important social factors that affect attainment of the goal of training
- specific statement of the problem of training and its parameters
- identification and description of alternative problem-solving strategies
- identification of the strategies or general approaches which appear most likely to solve the problem of meeting national and regional needs for RDD&E personnel.

Three publications have resulted from this stage of development:

Research Review Modular Report to Determine National Needs for Research, Development, Diffusion, and Evaluation Personnel in Education: Consortium


Recognize the existence of problem
Ascertain relevance of problem to Laboratory's problem focus
Identify specific goal not being obtained
Collect information on problem
Organize information
Identify factors affecting attainment of goal
Select factors to emphasize
State problem specifically
Delineate parameters of problem
Document alternative strategies for solving problem
Identify best strategy
Prepare report and documentation for presentation to decision maker
Major Decision Point
Feedback for Product Refinement
Feedback for Process Improvement

SEQUENCE OF STEPS
IN
CONTEXT ANALYSIS

FIGURE 2

Proposal RFP 70-12 (August, 1970); Summary of RDD&E Functions and Skills (August, 1970); and Information on Strategy Selection for Training Proposal RFP 70-12 (September, 1970). These three documents were later combined into one volume and updated. (See Volume I (pp. 1-44) of the Final Report.)

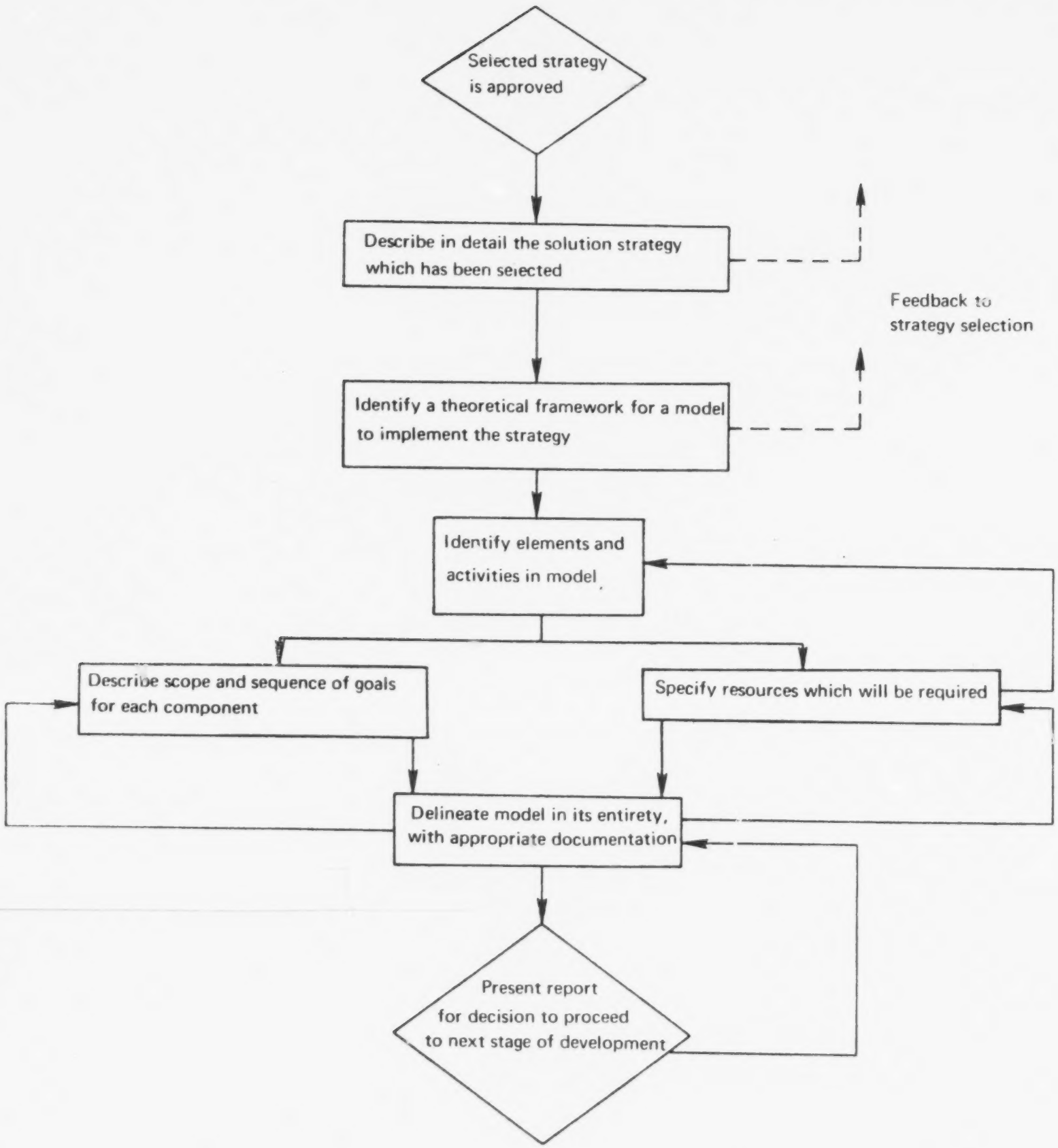
Stage Two: Conceptual Design

Conceptual design concerned the development of various aspects of the selected strategy. Objectives of this stage are the identification of various components and elements of the solution strategy and the development of a model of elements and activities sequenced to achieve the objectives of the product. (See Figure 3.)

During this stage, the consortium was concerned with the formulation and selection of strategies for training personnel to meet needs in RDD&E. The consortium chose a modular systems approach to training, utilizing concepts from both on-the-job and off-the-job training programs. The strategy was geared to the constraints of individualized instruction and the particular needs of the participating agencies. (See Volume I, pp. 23-44.)

The following steps were included in this stage:

- specification of the solution strategy for training outlined in Stage One --- Conceptual Analysis
- identification of a theoretical framework for a training model which will implement the selected solution strategy
- identification of the elements and activities in each component of the training system model
- description of the scope and sequence of goals for each training system component
- specification of the resources which will be required


Selected strategy is approved
Describe in detail the solution strategy which has been selected
Feedback to strategy selection
Identify a theoretical framework for a model to implement the strategy
Identify elements and activities in model
Describe scope and sequence of goals for each component
Specify resources which will be required
Delineate model in its entirety, with appropriate documentation
Present report for decision to proceed to next stage of development
Major Decision Point
Feedback for Product Refinement
Feedback for Process Improvement

SEQUENCE OF STEPS

IN CONCEPTUAL DESIGN

FIGURE 3

- delineation, with appropriate documentation, for the training systems model in its entirety

The outcome of this stage has been the publication by the consortium of Task Force Activities - 2 Volumes (September, 1970); and Modular Report 2 - Definition and Expansion of Selected Strategies Required for an Operational Training Program (October, 1970). These three publications, as well as the three documents published during the context analysis stage, were combined as part of Volume I of the Final Report.

Stage Three: Product Design

The third stage of the developmental process concerns converting all existing research, studies, conceptualization, and specification into an initial version of a developmental product. (See Volume I, pp. 58-69). The objective of this stage is to produce a workable product which incorporates specified elements and includes enough content of sufficient quality to be ready for testing. (See Figure 4.)

The product design stage overlaps the efforts of the consortium in designing a viable and functioning training system during the following 42 months. The major products being designed during this stage were the components for the four major subsystems. These are:

A. Diagnostic Subsystem

1. Agency I Interview (policy)
2. Agency I Interview (supervisors)
3. Agency Questionnaire
4. Individual Interviews
5. Diagnostic Tests
   (a) RDD&E orientation
   (b) Conceptualization of issues
   (c) Design
   (d) Objective setting
   (e) Design and Analysis
   (f) Summarization
   (g) Implementation

SEQUENCE OF STEPS
IN
PRODUCT DESIGN

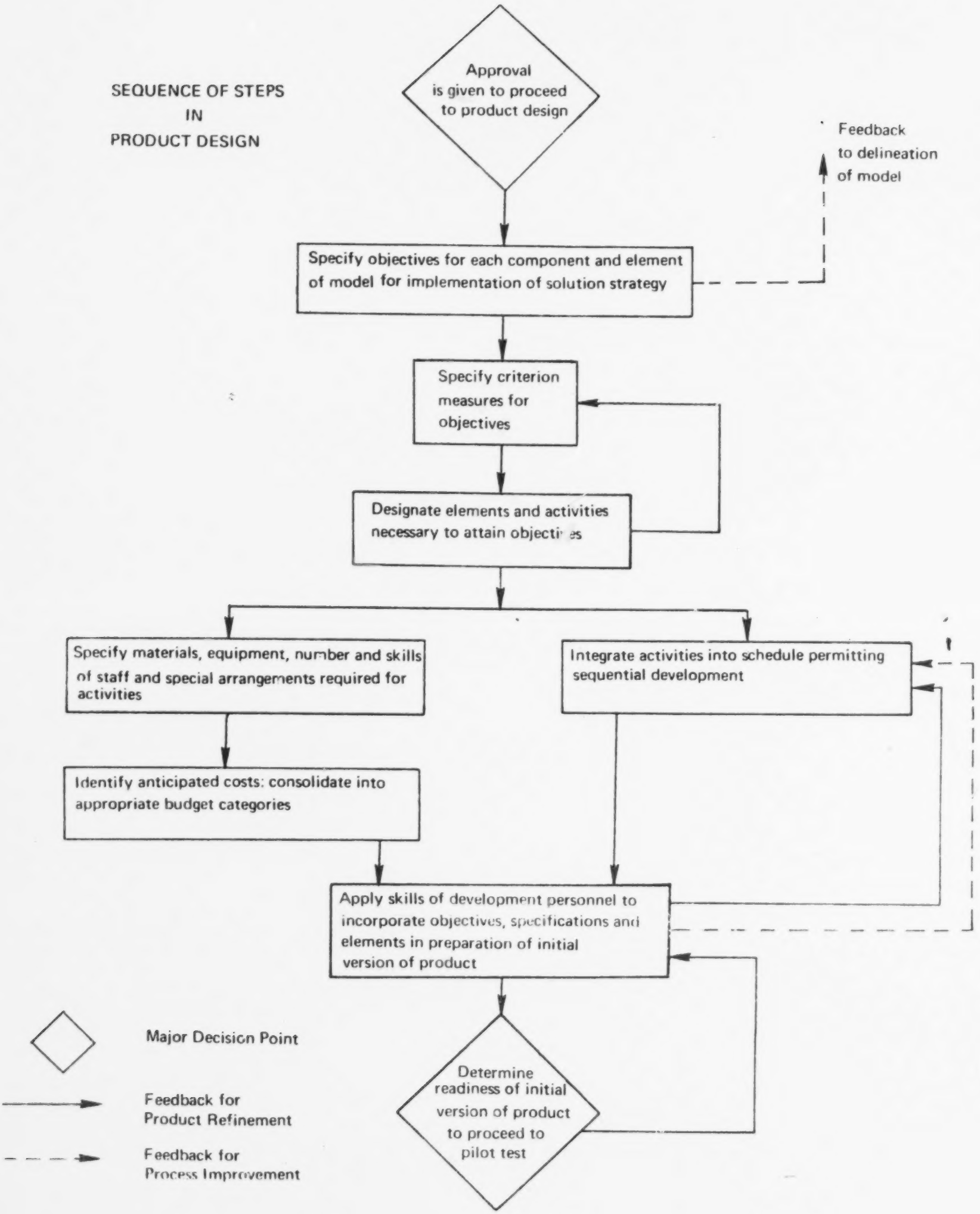

Approval is given to proceed to product design
Feedback to delineation of model
Specify objectives for each component and element of model for implementation of solution strategy
Specify criterion measures for objectives
Designate elements and activities necessary to attain objectives
Specify materials, equipment, number and skills of staff and special arrangements required for activities
Integrate activities into schedule permitting sequential development
Identify anticipated costs: consolidate into appropriate budget categories
Apply skills of development personnel to incorporate objectives, specifications and elements in preparation of initial version of product
Major Decision Point
Feedback for Product Refinement
Feedback for Process Improvement
Determine readiness of initial version of product to proceed to pilot test

FIGURE 4

6. Agency Needs Checklist
7. Individual Needs Checklist

B. Training Subsystem

1. Goal Setting Checklist
2. Training Packages:
   (a) RDD&E orientation
   (b) Conceptualization of issues
   (c) Design
   (d) Objective setting
   (e) Design and Analysis
   (f) Summary
   (g) Implementation
3. Internship manuals and guidelines
4. Summary Report Form

C. Management Subsystem

1. Storage and Retrieval Systems for Trainee and Agency data
2. Cost-data Processing
3. Placement Information in conjunction with the placement subsystem

D. Placement Subsystem

1. File of Agencies
2. File of Trainees completing Program
3. File of Internship sites
4. Evaluation Forms for Trainees and Supervisors

The steps in product design include:

- conversion of the model delineated in Stage Two and the related decisions into specifications of objectives for each component and element of the training system

- specification of criterion measures for objectives

- designation, in writing, of the elements and activities necessary to reach training objectives

- specification of materials, equipment, staff required for activities

- delineation of anticipated costs, and consolidation of costs into appropriate budget categories

- production of initial modules for training in the seven "key" skill areas, utilizing available skills to combine objectives, specifications, and elements

- integration of activities into a schedule that permits sequential development of the training programs

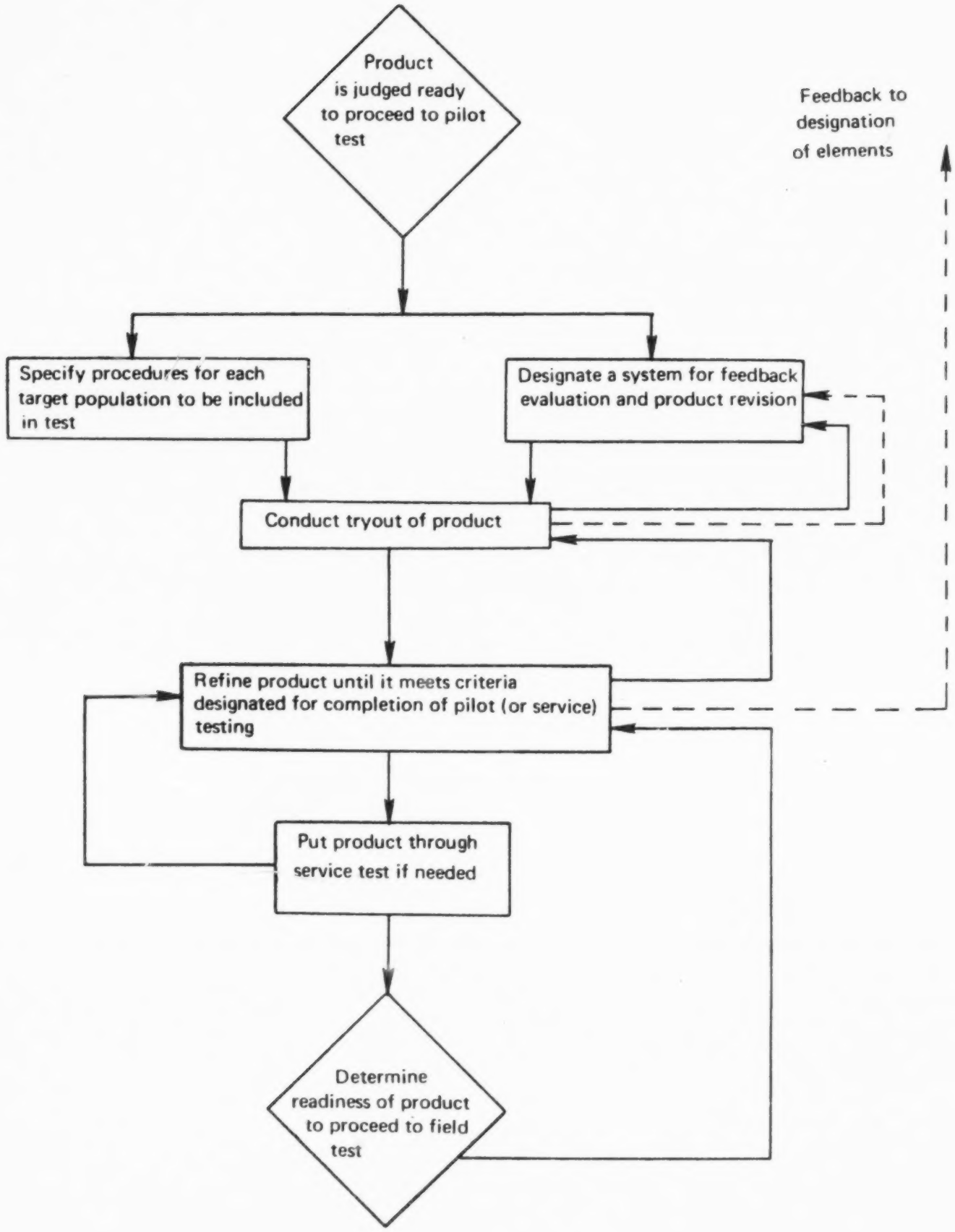
The consortium has completed the first portion of the product design stage up to the actual production of the training modules. High-need, low-availability skills areas have been determined and preliminary modules for training in these areas have been designed. The specification of the components are presented later in this volume. Actual construction of the modules and their components would constitute the main consortium activity for the first year (February, 1971 to January, 1972). The second year (February, 1972 to January, 1973) of the developmental sequence would involve further development and pilot testing of the components both separately and in combinations.

Stage Four: Pilot Test

The pilot test stage is usually carried out under controlled conditions in selected test sites and in close supervision by the originators of the training modules. The objective of this stage is to test, evaluate, and amend individual products to improve them and to enhance the potential value of the learning systems in which they will be used. (See Figure 5.)

Steps included in the pilot stage are:

- specification of procedures to meet designated needs of each trainee or groups of trainees to be included in the test
- designation of feedback evaluation system -- the system must incorporate a plan for use of feedback data and a proposed revision system with criteria to be applied
- conducting a tryout for a cycle of time appropriate to the nature of the test product
- refinement of the product according to the results of the tryout
- conducting a second tryout
- refinement of the product according to the results of the second tryout (if necessary)


Product is judged ready to proceed to pilot test
Feedback to designation of elements
Specify procedures for each target population to be included in test
Designate a system for feedback evaluation and product revision
Conduct tryout of product
Refine product until it meets criteria designated for completion of pilot (or service) testing
Put product through service test if needed
Determine readiness of product to proceed to field test
Major Decision Point
Feedback for Product Refinement
Feedback for Process Improvement

SEQUENCE OF STEPS
IN
PILOT TEST

FIGURE 5

- conducting a third tryout (if necessary)
- refinement of the product until it meets the criteria designated for the completion of pilot testing (if necessary)

Pilot testing is divided into (a) feasibility testing, or the testing of separate pieces, and (b) service testing, or testings of the subsystem(s). The service test is necessary only when a developed product comprises an entire learning system. In service testing, steps are taken to integrate components into a whole subsystem or system in as complete a configuration as possible. Service tests establish that those components of a learning system which worked well individually will also work well when merged. In this consortium's training system, a number of modules would be tested and the four larger training subsystems operationalized. This stage of the consortium's developmental program is scheduled to occur during the second year (February, 1972 to January, 1973) of operation.

Stage Five: Field Test

This stage in the developmental process concerns large scale testing of the working training system taking place under the supervision of the consortium members. The objectives of the field test are (1) to determine the ultimate utility and viability of the training program under test, (2) to facilitate marketing and diffusion of the system by measuring its effectiveness, cost, endurance, and potential, and (3) to ascertain the effects of extraneous variables upon the system. An additional objective will be the training of approximately 350 RDD&E personnel. (See Figure 6.)

Field testing of the program will take place in the third year (February, 1973 to January, 1974) and two months of the fourth year. Developmental steps include:

SEQUENCE OF STEPS
IN
FIELD TEST

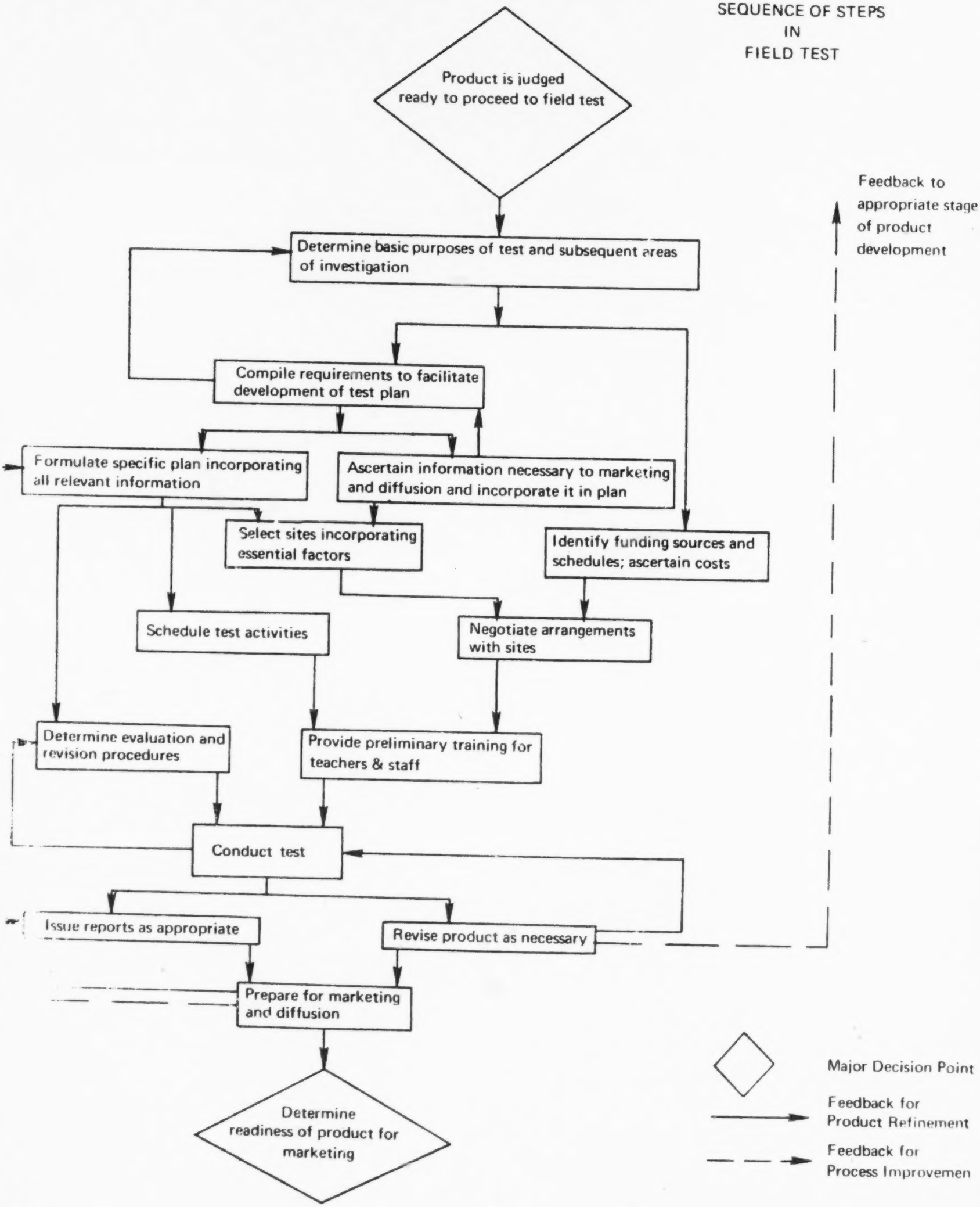

Product is judged ready to proceed to field test
Determine basic purposes of test and subsequent areas of investigation
Compile requirements to facilitate development of test plan
Formulate specific plan incorporating all relevant information
Ascertain information necessary to marketing and diffusion and incorporate it in plan
Select sites incorporating essential factors
Identify funding sources and schedules; ascertain costs
Schedule test activities
Negotiate arrangements with sites
Determine evaluation and revision procedures
Provide preliminary training for teachers & staff
Conduct test
Issue reports as appropriate
Revise product as necessary
Prepare for marketing and diffusion
Determine readiness of product for marketing
Feedback to appropriate stage of product development
Major Decision Point
Feedback for Product Refinement
Feedback for Process Improvemen

FIGURE 6

- determination of basic purposes of the test and subsequent areas of investigation
- compilation of various test requirements to facilitate the development of a test plan
- formulation of a specific test plan by applying the requirements to real-life situations
- inclusion of provisions in the test plan for obtaining whatever information will be necessary or useful in marketing and diffusing the modules
- consideration of the various factors relevant to site(s) selection
- identification of funding sources and schedules; ascertaining test costs and identifying them by budget source
- negotiation of arrangements with test sites
- scheduling of test activities in advance, with appropriate lead time allowed for each activity
- provision of preliminary training necessary for the agency staff who will be working with the trainees and training modules
- determination of procedures for collecting evaluative information, and for analyzing it
- conduct of the test
- issuance of periodic reports as appropriate and preparation of comprehensive evaluative report at termination of testing
- establishment of procedures for revising the training product as necessary and for incorporating the revisions into the ongoing test
- Formulation of plans for marketing and diffusion of the product following successful completion of the field test

Stage Six: Marketing and Diffusion

The final stage in the developmental process follows completion of development of all components of an educational system or product. The objective of marketing and diffusion is to formulate and implement a plan for installing the training system on a nationwide basis. The Final Report

of the operational phases of this project indicate how all components of the training program fit together and how they can be used by interested agencies or institutions in the educational market.

THE SYSTEM FOR TRAINING

Prior to the development of a comprehensive training system for research, development, diffusion, and evaluation personnel in education, national needs were reviewed in a variety of institutional and agency settings. A thorough examination of the literature and a survey of a representative sample of agencies using personnel in RDD&E nationally were carried out. Public school districts, state departments of education, educational development laboratories, research and development centers, colleges of education, educational corporations, and education-related business were interviewed. All indicated the occurrence of changing employment patterns and the increased need for trained RDD&E personnel on a full-time basis. (Refer to Volume I, pp. 6-22 for detailed discussion.)

The existing need for trained RDD&E personnel in education serves as the rationale for developing the proposed training system. It might be noted that the term "training" is a word applied in broad areas of instructional processes. A process implies an ordering of parts in a systematic schema. Training, itself, involves the techniques and procedures for guiding and modifying human behavior. Therefore, the purpose of a training system is to create the conditions that cause behavior to be modified in definable changes according to specified instructional objectives. From this conceptual framework a system of training has been designed which takes into consideration a variety of requirements.

There is a wide variety of needs throughout the educational spectrum, and the majority of agencies and institutions surveyed indicated that present staffs are not equipped to handle the functions of research, development, diffusion, and evaluation. A formalized training program would produce skilled personnel in less time than many agencies now indicate

is necessary to obtain a minimum level of competency through in-house training. It is anticipated that this training system will serve individual needs and still retain functional benefits by allowing trained individuals to move horizontally in an organizational structure if necessary. The result would be to maximize the person's effectiveness as well as to increase the organizations' efficiency of operation.*

At one end of a continuum of requirements for education and training, the most complex occur in established universities with accreditation. At the other end of the continuum, the less complex requirements can be met by conducting vocational training through minicourses or specific training modules. The training design chosen to accommodate these diverse needs is a system of modular instructional units.

The seven skill areas abstracted from the AERA task force reports identify general areas of competency required to perform the functions of research, development, diffusion, and evaluation in education. Each instructional module in the training program will be one of a series of functional training units that comprise the total material for a given skill area. These modular packages can be combined to provide various skill levels and background materials for producing personnel competent in RDD&E.

Each module will contain two training elements, one of specific content that the individual requires in order to master the skills involved, the other of practical exercises needed to give control and practice to the individual. These exercises might be checklists, work sheets, simulated activities, small group interactions, and problems that

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*For data or institutional needs and staffing requirements according to type of agency see research of national needs interview synthesis, Volume I, pp. 6-21 of this report.

could be carried out as a part of one's job. The training module was selected as the instructional unit because it facilitates the individualization of training materials and results in exportable packages to be used as a part of on-the-job training. At the end of each instructional unit a performance test would determine the degree of competency with which the trainee might meet the instructional objectives.

Subsystems

The total training system can be broken down into four subsystems:

1. Diagnosis
2. Training
3. Placement
4. Management

A close examination of each subsystem is necessary for understanding the training system as a whole. Each of these subsystems are interdependent and address four critical components for implementing a successful training design.

Diagnosis: First, a trainee must be placed at an appropriate level when he enters the program, and once he is a part of the training system there must be checkpoints to determine whether or not the training is accomplishing its specified goals. Therefore, a series of diagnostic tests and interviews are administered to determine the level of entry and course materials most appropriate to the individual prior to his entry into the program. A diagnostic profile can follow the individual throughout his training to allow various entry and exit points within the system and to provide a built-in flexibility that encompasses all the existing individual and organizational goals. Self-evaluation, written evaluation by a member of the training staff, and evaluation by an agency supervisor will provide various mechanisms by which the effectiveness of training will be determined.

The function of the diagnostic subsystem will be to identify the needs of the agency and of the individual to be trained and to determine competency levels of that individual during pre- and post-training periods. While motivation cannot be packaged into a training model, it can be indirectly incorporated into the program through recognition of agency responsibility to trainee and through course credit for college and university students.

Training: The training subsystem is the major component through which an individual will receive course content as it relates to the four educational research and research-related functions. Based on the information obtained from the diagnostic profile and the agency goals defined in the diagnostic subsystem, appropriate goals will be set for the individual trainee. This process of goal setting will precede the development of a training package. Individual training modules will be built around the diagnostic information regarding the individual to be trained and his appropriate entry level. A wide range of training materials will be used in filling the needs of individuals as they relate to agency needs. The combination of skills and the identification of specified goals will determine the composition of the training package. The trainee could progress at his own rate to allow a minimum of disruption from the normal routine.

Finally, the training subsystem will include an internship experience, if applicable, through which the trainee will be given an opportunity to practice his newly acquired skills in a setting comparable to the agency for which he was trained. These internship experiences will vary in length from one to six months, as determined by the skills and goals involved. Performance tests and specific

guidelines will be used to assess the degree of competency attained by the trainee.

When the individual has completed the training cycle and the internship experience, a summary report form will be given to his sponsoring agency. This form will list the skills the trainee has developed and will specify this performance during training and internship. This will provide the agency with an up-to-date personnel record on the trainee.

Placement: The placement subsystem will provide information on the agencies and institutions interested in the individuals after training. Information will be kept on file regarding evaluation of trainees, the program, and the internships.

Management: The management subsystem will store all information pertinent to the training process of the individual trainee. Diagnostic information, individual performance information, internship evaluations, and evaluations based on performance following completion of training will be gathered here and disseminated as needed by the training staff. A computer program will be used to monitor the progress of each individual student as he proceeds through the training process. Thus, the management subsystem will control and store all diagnostic and evaluative information on training from the individual level to the agency levels. This subsystem also will store all evaluation information on each of the training components, each subsystem, and the overall training program.

By considering the needs of agencies and individuals, the diagnostic subsystem provides information necessary for developing individualized training packages; the training subsystem uses this

information to build modular units for training appropriate to the particular individual and agency goals; the placement subsystem assures the trainees of an opportunity to practice RDD&E skills in a complementary institutional setting; and the management subsystem monitors the entire training program to assure its optimum functioning.

Thus far, the objectives have been specified and the developmental process has been discussed. Also, the training system has been presented in overview form. The following section discusses the system of training, and precedes the section on development of components. The development of components' section discusses each subsystem with respect to context, development, and pilot testing.

THE SUBSYSTEMS

The Diagnostic Subsystem

The major functions of the diagnostic subsystems are to assist the agency in determining its goals and personnel needs, and to carry out an individual diagnosis of the trainee. These functions will be implemented by a series of components consisting of interviews, questionnaires, checklists, and diagnostic tests developed in the first two years of the training program. Information gathered from these materials will form the basis for the development of individually-tailored training packages for the agency and trainee.

A diagnostic profile will be developed for each agency expressing a desire to participate in the training program. By determining the needs and goals of an agency as perceived at various staff levels and the needs and goals of individuals in terms of their interests, aspirations, educational background, levels of competency and perceived training needs, the diagnostic subsystem will provide a starting point for the development of appropriate training materials. It also will lay the groundwork for the continuous evaluation process.

Components

1. Agency Interview (Policy) will consist of a partially-structured, face-to-face interview between an agency administrator and a staff member. It may be conducted by any individual skilled in interviewing techniques and knowledgeable in the operations of the particular type of agency. The purpose of the interview, which will range from 30 minutes to one hour, will be to identify problems and goals of the agency that currently are not being met by the staff employed.

Persons interviewed at the policy-making level might include a top administrator, a school superintendent, an assistant commissioner of education in a state agency, or a department head of a research and development

laboratory. A projection of the goals perceived by the interviewee will be used to determine whether the agency's problems can be alleviated by innovative staff training.

This interview at the policy-making level will accomplish three tasks: 1) the determination of the problems and goals of the agency as perceived by its decision-making personnel; 2) the determination of the present and projected focus of the agency as perceived by its decision-making personnel; and 3) the identification of supervisory individuals on staff at the agency with whom additional interviews can be carried out for a fuller understanding of the problems and goals of the agency.

In its completed form this agency interview should be used to assess the major focus of the agency with a projected accuracy of 85 percent on an acceptance rating scale of five points. It is anticipated that it will be judged as "highly acceptable" or "acceptable" by a minimum of 85 percent of the top policy makers in the agency.

Southwest Educational Development Laboratory will be responsible for the development and implementation of this component of the diagnostic subsystem. It will be developed in its entirety during Year I of the training program, and it will be tested by the consortium agencies and other organizations with a reasonable number of the policy and supervisory staff able to participate.

The objectives and focus for the organization as defined at the policy-making level will become a part of the diagnostic profile, from which particular training units may be designed should the agency decide that additional training is necessary. In this manner, the training program developed for a specific agency will be appropriate to its objectives, with particular attention given to the long and short range goals of its policy makers.

2. Agency Interview (Supervisory) will be a face-to-face, semi-structured interview with the supervisory individuals identified in the first agency interview at the policy-making level. The purpose of this component is to determine the needs and goals of the organization as perceived by the supervisory staff. This interview should last from one to two hours.

In addition to determining the perceived goals and focus of the organization from the standpoint of its supervisory staff members, this interview will serve to identify potential individuals who, given these goals and agency focus, would benefit from training.

This interview in its completed form should also reflect an 85 percent or more acceptability rating from the staff interviewed. By incorporating the agency needs and goals at this level into the diagnostic profile, a more complete assessment of agency training appropriate to the trainees will be available.

Southwest Educational Development Laboratory will be responsible for the development and administration of the agency interview at the supervisory level. At the end of Year I both the development and the test studies for its effectiveness should be completed, making it a workable model for the continuing years of the training program.

3. Agency Questionnaire is the third major component of the diagnostic subsystem. The purpose of this component will be to provide a true picture of the goals, needs, and skills of the staff as perceived by the employees of the agency.

This questionnaire should be given on an individual basis without monitoring and be no more than one hour in length. It will be a structured format given either to all agency employees (excepting policy making and supervisory staff, which were covered in components 1 and 2) or to a selected group of employees in that agency.

This agency questionnaire has three objectives. First, it will attempt to identify, as perceived by the employees of the agency, the goals and focus of the organization, both as they exist and as they are viewed for the future. It will further identify the employees' interest in being involved in additional training. Finally, it will assess the skill competencies desired by the employees as they have verbalized them on the questionnaire.

When the questionnaire has been completed and the data compiled in its final form, it should be evaluated by 85 percent acceptance rating or better from those employees who have taken it. Their goals and skill competencies for training as they are perceived should match the results of the questionnaire.

This component of the diagnostic subsystem will be developed in its final form during Year I by Southwest Educational Development Laboratory. The questionnaire combined with the agency interview information gained from components 1 and 2 will provide a complete and accurate representation of an agency's goals and focus, the needs for specific kinds of training, and the desirability for training at three staff levels: policy-making, supervisory, and general staff members of the organization.

4. Agency Need Checklist will be provided to the agency after the agency interviews and questionnaires have been completed, as described in components 1 through 3. The major purpose of the checklist will be to provide the agency a chance to consider what training might be necessary and whether or not the agency might benefit from additional staff training. It will list in general format the details from the interviews and questionnaires as the goals have been perceived by the policy makers, supervisors and staff. Accompanying this list will be a letter with a series of recommendations for training. Potential individuals within the organization to be trained would also be identified. Southwest Educational Development Laboratory will be responsible for the development of this component during

Year I.

At this point, it will be appropriate for the agency to indicate whether or not it is interested in further diagnosis to determine more specific training needs, and to enable a commitment or refusal of a training program. If the agency indicates that it is indeed interested in further diagnosis, then the following components will be administered.

5. Individual Interview may vary in format, depending upon the availability and convenience of the agency and individual involved. The preferable approach would be a face-to-face, semi-structured interview which would vary in length from one to three hours. (The alternative strategy for this diagnostic instrument would be written forms.) The interview will be an in-depth analysis of the individual as a potential trainee. Its purpose will be to provide a thorough understanding of the individual's needs and goals. The information from this component will be stored in the diagnostic profile and will accompany the individual as he proceeds through various training units. It will form the basis from which the training can be evaluated.

Three kinds of information to be obtained from this interview will be: 1) the formal and informal education background of the individual, 2) his interests and aspirations as they relate to goals and career, and 3) how he perceives his training needs with respect to the particular agency in question. In the case of university students, appropriate materials will be substituted. A detailed understanding of the student's life goals and his perceived focus of the type of place he might be employed in the future will be of key importance.

The individual interview component is to be developed by Southwest Educational Development Laboratory during Year I. At the end of this period the format and materials in the form of questions should have been developed and tested on a population of potential trainees from consortium institutions

and other available organizations.

The information gained from this interview will become particularly valuable in assessing the unique and individual characteristics of each trainee. The training package can be built suitable to the needs and skill competencies necessary for each individual. The perceived goals of each trainee will be included in a diagnostic profile and will accompany him throughout the training process. It becomes a built-in mechanism for the evaluation of the success of the training upon the individual.

6. Diagnostic Tests will be administered to the individual after the interview has been completed. A series of tests will be designed during Year I and Year II in the development of the overall training program. An individual may or may not take all of these tests, depending upon which skill areas are appropriate to the agency needs and goals. The format of these tests will vary according to the material and data. One possibility would be pencil and paper, multiple choice, essay, simulation, and computational questions. Another would be a demonstration of materials on audio or video tape for the predetermined materials to illustrate, for example, the implementation of outcomes and to ask the individual how he might perform the task. Another alternative would be to give the individual an assigned task for a specified time period and ask him to illustrate with an audio or video tape how the particular RDD&E function might be carried out. This diagnostic test material will become an integral part of the trainee's permanent record.

A series of diagnostic tests will be developed for each of the seven skill areas delineated for training RDD&E personnel. These skill areas include: orientation to RDD&E, conceptualization of goals and processes in education, developmental conception and design in research, objective setting to develop instructional systems, design and analysis, summary and communication

of outcomes, and implementation of outcomes. General and specific tests for each of the above areas will be designed for each of the forty-eight modular instructional units to determine the individual's level of competency. For example, an individual might prove that he is capable of using the terminology related to the general processes of RDD&E in education in correct context. At this point, he would be ready to utilize modular course material on "History and Process" (or Module 2), but he would not need to train in the course on "Definitions" (or Module 1). The purpose of these tests will be to determine an individual's knowledge of a given area. An individual might not take all of the tests, but rather, only those tests which cover areas of interest to the individual and his agency.

Content tests would determine an individual's ability to conceptualize educational issues and his understanding of educational processes. Other tests would determine how well an individual understands the techniques of research and development, how well he can apply them to the achievement of specified goals, and how well objectives can be formulated and stated. These tests also will ascertain an individual's ability with measurement and evaluation devices, as well as the ability to analyze and report on the data.

The developers of these diagnostic tests are as follows:

A. Southwest Educational Development Laboratory:
   1. orientation to RDD&E
   2. implementing outcomes

B. Educational Development Corporation:
   1. designing techniques to carry out educational goals
   2. setting educational objectives
   3. measuring and evaluating educational objectives

C. Louisiana State University:
   summarizing and communicating outcomes

D. Arizona State University:
   conceptualizing issues and processes in education.

The goals of the diagnostic subsystem are to give reliable and valid

information about the agency and the individual. Ultimately, this information should provide an important measure of the individual's performance, in terms of skill facility both before and after training. The components of the diagnostic subsystem, including agency interview (policy), agency interview (supervisory), agency questionnaire, agency need checklist, individual interview, diagnostic tests, and individual need checklist, will be pilot tested on a number of participating consortium agencies. These agencies are the following:

1. Southwest Educational Development Laboratory
2. Texas Education Agency
3. University of Texas, College of Education
4. Research and Development Center, University of Texas
5. Education Service Center
6. Austin Independent School District
7. Louisiana State University
8. Arizona State University
9. Brigham Young University.

7. Individual Need Checklist will be the written letter and series of recommendations after all the diagnoses have been completed and analyzed. This letter and list of recommendations will be sent to the agency or institution indicating an interest in the training program. It is at this point that the particular organization will have the opportunity to decide whether or not it will commit a certain number of its staff to the training program. This checklist will be developed by Southwest Educational Development Laboratory during the first year of the development of the training program. Any additions or revisions to the format will be made after this document has been pilot tested in a selected number of institutions and agencies during the first and second year of the training program.

Each of the above described components of the diagnostic subsystem will be pilot tested in a secondary manner after the initial pilot tests have been made. This second pilot test will be a service test which provides evaluative feedback for minimal revision of content and a revision of

procedures before the main field test is conducted. The following components: 1) agency interview (policy), 2) agency interview (supervisory), 3) agency questionnaire, 4) agency need checklist, 5) individual interview, 6) diagnostic tests, and 7) individual need checklist will be service tested in a number of selected sites of organizations participating in the design and operation of components. These organizations will provide the population for the service test to be run during the second year in the development of the training program. These organizations are:

- Southwest Educational Development Laboratory
- Texas Education Agency
- Research and Development Center, University of Texas
- Education Service Center
- Austin Independent School District
- Louisiana State University
- Arizona State University
- Brigham Young University
- Human Development Institute, Inc.
- Pennsylvania State Department of Education
- United States Research and Development Corporation

Because the development of the diagnostic subsystem precedes the development of training, all components of the diagnostic subsystem will have been designed, evaluated, revised and available for the pilot test by November, 1972. Figure 7 is a chart of the developmental process and pilot testing of the diagnostic subsystem.

dv = Development
ev = Evaluation
rv = Revision

DEVELOPMENTAL PROCESS OF DIAGNOSTIC SUBSYSTEM

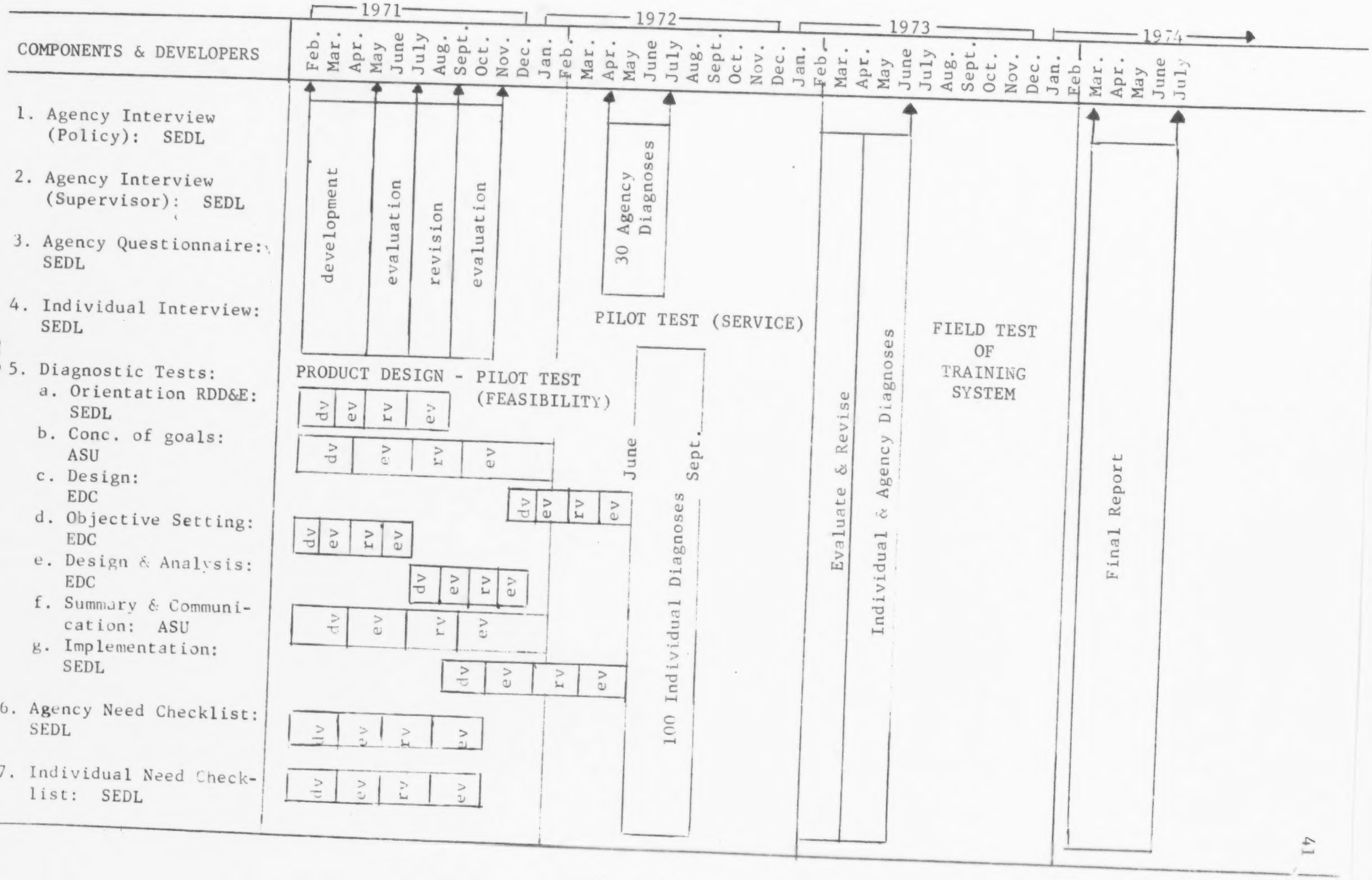
1971
1972
1973
1974
COMPONENTS & DEVELOPERS
Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb Mar. Apr. May June July
1. Agency Interview (Policy): SEDL
2. Agency Interview (Supervisor): SEDL
3. Agency Questionnaire: SEDL
4. Individual Interview: SEDL
5. Diagnostic Tests:
a. Orientation RDD&E: SEDL
b. Conc. of goals: ASU
c. Design: EDC
d. Objective Setting: EDC
e. Design & Analysis: EDC
f. Summary & Communication: ASU
g. Implementation: SEDL
6. Agency Need Checklist: SEDL
7. Individual Need Checklist: SEDL
development
evaluation
revision
evaluation
30 Agency Diagnoses
PILOT TEST (SERVICE)
PRODUCT DESIGN - PILOT TEST (FEASIBILITY)
dv ev rv ev
June
Sept.
100 Individual Diagnoses
Evaluate & Revise
Individual & Agency Diagnoses
FIELD TEST OF TRAINING SYSTEM
Final Report

Figure 7

The main field test on these components will be made during the third year of the operation of the training program. The test population for this evaluation will be drawn from nationally-selected agencies and institutions in areas of close proximity to service-test sites where possible. Because internships would occur in service-test sites, travel and relocation during the third year test would be held to a minimum in establishing new test sites.

This section on the Diagnostic Subsystem has been a detailed examination of the components of the subsystem, the content of the components, and a description of the developers of each and the timetable estimated for their design and operation. It is now appropriate to consider the Training Subsystem in the same manner.

TRAINING SUBSYSTEM

For design purposes the training system has been broken down into several levels. There are seven major areas of training to be addressed, and within each of these seven areas are a series of modular units which carry the actual course content for the skill areas delineated. When an individual has completed the courses for any of the seven skill areas, he will possess the desired "terminal behavior." Entry levels for individuals will vary according to the skill area, and there will be both a minimal entry behavior and an optimal entry behavior. Those individuals possessing minimal entry behaviors will have a specified minimum knowledge as outlined in this section. Individuals possessing optimal entry behaviors will have accomplished the maximum of knowledge necessary to enter a particular training component.

The primary objective of each modular course will be the terminal behavior of the individual after he has completed the course. These behaviors will be discussed as they relate to each of the courses developed.

The seven major skill areas to be addressed in this training system are:

1. Orientation to RDD&E
2. Conceptualization of Goals & Processes in Education
3. Developmental Conception and Design in Research
4. Objective Setting to Develop Instructional Systems
5. Design and Analysis
6. Summary and Communication of Outcomes
7. Implementation of Outcomes*

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*An eighth skill area is being proposed -- "Identification and Incorporation of Attitudes and Values of Minority Groups in Education." Due to financial limitations, this component will not be developed; however, the proposed course content will be discussed.

It is now appropriate to discuss in detail the content, development and pilot testing of each of the components of the training subsystem. These components are:

- Goal Setting Checklist
- Training Packages
- Internship Manuals and Guidelines
- Summary Report Form for Agency

1. GOAL SETTING CHECKLIST

This product will be developed by Southwest Educational Development Laboratory during the latter part of the first year and the first part of the second year in the development of the training system. It will be a standard form provided for the agency and for the trainee which outlines the agency and individual needs and goals for training as defined by the diagnostic subsystem. It will provide a coherent and complete analysis of the particular goals for training and also give a strong basis for evaluation once the agency has completed training.

2. TRAINING PACKAGES

The following will be a discussion of the minimal and optimal entry behaviors for individuals entering each of the major components of training. It includes an examination of the desired terminal behaviors for individuals who have completed the training in each of the seven skill areas. Evaluation forms will be developed for each of the modular courses by the respective developers. The developers are listed in the descriptive section of each module in this final report. The evaluative instruments will parallel the diagnostic tests and provide a basis for comparison with individual training accomplishments. Pre-training entry level of an individual may be compared with post-training evaluation for each modular course.

The first component of training is "Orientation to RDD&E." It contains approximately eight course hours. The minimal and optimal entry behaviors for this component will be the same. For agency personnel, the entry level is a basic knowledge of the field of education and an interest in learning more about RDD&E in education. This may be for supervisory information and/or for working within one or more of the RDD&E roles. For graduate students, the entry level is a basic knowledge of education and related fields and an interest in learning more about the RDD&E process.

When an individual has completed the area of orientation he will have gained a basic understanding of the research, development, diffusion, and evaluation skills in education. His desired terminal behaviors will be that he demonstrate an understanding of the nomenclature, processes, and staffing patterns of an agency performing one or more of the RDD&E roles.

The second component of training is "Conceptualization of Goals and Processes in Education." It contains approximately 55 course hours. The minimal entry behavior for agency personnel and for graduate students for

this component is the same as for the orientation component. Optimal entry behavior for both agency personnel and for graduate students will be previous actual involvement in a project that utilized the RDD&E process. For instance, the individual might have been a member of a research or development team or might have had previous experience in diffusion and evaluation.

When an individual has completed this second training component he will have a basic understanding of how to conceptualize the goals and processes in education. His desired terminal behavior will be that he demonstrate the ability to apply one or more of the RDD&E strategies to specific problems within his particular agency, or to his projected work setting if a graduate student.

The third component of training is "Developmental Conception and Design in Research." It contains approximately 36 course hours. Minimal and optimal entry behaviors will be the same for graduate students and agency personnel. The minimal entry behavior would be the successful completion of academic credit in six hours of statistical courses in psychology or education. These courses should include two of the below:

a. 3 (three) hours of advanced undergraduate or graduate work in introduction to statistics as applied in education or psychology

b. 3 (three) hours of experimental design including analysis of variants and co-variants

c. 3 (three) hours of non-parametric methods including non-parametric descriptive methods, and non-parametric inferential methods.

The minimal entry behavior also requires that the individual have the ability to demonstrate an understanding of the structure and application of various design methods. The optimal entry behavior would consist of minimal entry behavior plus the application of various design procedures that utilize the RDD&E process.

When an individual has completed this third component of training, he will have a basic understanding of how to choose a design for a particular RDD&E problem. The desired terminal behavior for that individual will be that he demonstrate the ability to select and apply a design application to one or more RDD&E strategies. Application should be to one or more problems similar to the problems within his particular agency or projected work setting.

The fourth component of training is "Objective Setting to Develop Instructional Systems." It contains approximately 36 course hours. The minimal and optimal entry behaviors for this component will be the same. For agency personnel, the entry level would be a basic knowledge of the field of education and an interest in learning more about RDD&E in education. This may be for supervisory information and/or for working within one or more of the RDD&E roles. For graduate students, the entry level would be a basic knowledge of education and related fields and an interest in learning more about the RDD&E process. These entry behaviors for both groups are the same as that for the first training component, "Orientation to RDD&E."

When an individual has completed this fourth training component, he will have a basic understanding of the process of objective setting as it relates to designing instructional systems. The desired terminal behavior for the individual would be that he demonstrate the ability to build an objective hierarchy to reach a specified outcome, applicable to designing or reviewing instructional materials. He must demonstrate this ability in a similar manner to the activities he would carry out in his particular agency or projected work setting.

The fifth component of training is "Design and Analysis." It contains approximately 41 course hours. The minimal and optimal entry behaviors

will be the same for agency personnel and graduate students. The minimal entry behavior is six hours of courses in statistics oriented towards psychology and/or education. These courses would include:

a. correlation methods

b. test construction methods

The optimal entry behavior for an individual entering this training component would be the above minimal entry behavior plus previous work and applications of these techniques to RDD&E problems.

When an individual has completed this fifth training component, he will have a basic understanding of the evaluative process for RDD&E activities. His desired terminal behavior will be the ability to develop the appropriate design to evaluate the relative success or failure of RDD&E activities. Application should be similar to one or more problems within the particular agency for which the individual has trained or in his proposed work setting.

The sixth component of training will be "Summary and Communication of Outcomes." It will contain approximately 50 course hours. The minimal and optimal entry behaviors for this component will be the same. An agency person would have a basic knowledge of the field of education and an interest in learning more about RDD&E in education. The graduate student would have a basic knowledge of education and related fields and an interest in learning more about the RDD&E process. These entry behaviors are the same as those for the first and the fourth components.

When an individual has completed this sixth component of training, he will have a basic understanding of how to communicate the findings of applied RDD&E strategies. The desired terminal behavior for this individual should be the ability to use oral and written communication

to present technical and non-technical findings in areas appropriate to his particular agency or proposed work setting as in the case of the graduate student.

The seventh component of training is "Implementation of Outcomes." It contains approximately 25 course hours. The minimal and optimal entry behaviors for this component will be the same. An agency person entering this training, will have had experience in report writing or diffusion. The graduate student will have conducted an independent research or research-based development project.

When an individual has completed this seventh component of training, he will have gained the knowledge appropriate to implementing the outcomes of the applied RDD&E strategies, including product testing, analyzing field results, and understanding the implications of the product (problems of diffusion and installation). His desired terminal behavior will be the ability to design an implementation strategy based on identifying users of the product, specifying the field site conditions, and specifying the short and long range goals of the product or process to be implemented. This performance should be similar to an implementation strategy he would use in his particular agency or proposed work setting.

The eighth component, which is proposed, but not developed (see note on first page, this section, Volume II "Training") is "Identification and Incorporation of Attitudes and Values in Target Groups." This component would contain approximately 80 course hours, if developed. The entry behavior for this component would be the standard minimum entry behavior as outlined for components 1, 4, and 6. Essentially, only a basic knowledge of the field of education and related fields and a desire to learn more about the application of RDD&E strategies would be necessary.

When an individual has completed this component, he will have a basic understanding of the various techniques employed in the analysis of target groups and an ability to describe the characteristics of those groups. The desired terminal behavior for this individual would be the ability to specify the major attributes of target groups. This would include those unique characteristics involved in any program design and evaluation design to determine the effectiveness of the program within the particular target groups.

Chart 1 illustrates the minimal and optimal entry behaviors for individuals prior to training in each of the seven training components as discussed above. It also shows the desired terminal behavior for individuals after they have completed training in each of the components. It includes a breakdown of the proposed number of hours for training in each component.

Each of the following modular units of training is proposed as a part of each of the seven training components, respectively. The modular units reflect the scope of the course content proposed and the desired terminal behaviors for individuals completing each unit of training. The length of each module depends upon the complexity of the course content material. The length takes into consideration the time necessary for the individuals to develop a full understanding of the RDD&E process in education and allows them an opportunity to practice in appropriate exercises the definitions, strategies, and skills learned in each unit.

It should be noted that this system of modular instructional units is flexible in that it allows the incorporation of additional training material as it is developed and falls into the realm of public domain. Individuals to be trained will be obtained primarily from two major categories: agency personnel and graduate students. By and large, students

TRAINING COMPONENTS	ENTRY LEVELS		TERMINAL BEHAVIOR	HOURS
	Minimal	Optimal		
1. Orientation to RDD&E	Agency personnel: basic knowledge of field of education and an interest in learning more about RDD&E Graduate students: basic knowledge of education, related fields, & an interest in learning more about RDD&E	Same Same	The individual will demonstrate an understanding of the nomenclature, processes, and staffing patterns of an agency carrying out one or more of the RDD&E roles.	8
2. Conceptualization of Goals & Processes in Education	Same as for Component 1	Agency personnel & graduate students: previous actual involvement in project utilizing RDD&E	The individual will demonstrate the ability to apply one or more of the RDD&E strategies to specific problem areas that would be similar to problems within his particular agency or his projected work setting.	55
3. Developmental Conception & Design in Research	Agency personnel & graduate students: completion of 9 hours of statistics + understanding various design methods	Agency personnel & graduate students: minimal + application of various design procedures utilizing RDD&E process	The individual will demonstrate the ability to select and apply a design application to to one or more of the RDD&E strategies. Application should be to one or more problems within his particular agency or projected work setting.	36
4. Objective Setting to Develop Instructional Systems	Same as for Component 1	Same as for Component 1	The individual will demonstrate the ability to build an objective hierarchy to reach a specified outcome, applicable to the design of or review instructional materials.	36

Chart 1

TRAINING COMPONENTS	ENTRY LEVELS: Minimal	ENTRY LEVELS: Optimal	TERMINAL BEHAVIOR	HOURS
5. Design & Analysis	Agency personnel & graduate students: completion of 6 or more hours of statistics oriented to education or psychology	Agency personnel & graduate students: minimal + previous applications of techniques to RDD&E	The individual will have the ability to develop the appropriate evaluation design to evaluate the relative success or failure of RDD&E activities. Application should be similar to one or more particular agency or projected work setting problems.	41
6. Summary & Communication of Outcomes	Same as for Component 1	Same as for Component 1	The individual will have the ability to use oral and written communication to present technical and non-technical findings in areas appropriate to his particular agency or projected work setting.	50
7. Implementation of Outcomes	Agency personnel: experience in report writing or diffusion Graduate students: independent research or research-based development project	Same Same	The individual will have the ability to design an implementation strategy based on identifying users of the product, specifying the field site conditions, and specifying the short and long range goals of the product to be implemented.	25
TOTAL NUMBER OF COURSE HOURS WHICH WILL BE DEVELOPED UNDER THE PROPOSED TRAINING SYSTEM:				251

Chart 1 Cont.

from the university have had a considerable amount of formal educational background in the areas of research, development, diffusion, and evaluation in education. They often have had little practice, however, outside the university setting in applying RDD&E knowledge in the field of education. On the other hand, personnel from state agencies, R&D laboratories, school systems, private educational corporations, and others may have had much practical experience in utilizing various skills related to the areas of RDD&E in the field. For the most part, these personnel have not had formal training, outside of on-the-job experiences, which would enhance their ability to perform the functions of RDD&E in their particular agencies.

By providing a common training ground for these two categories of individuals, the training system is enhanced through the meshing of various educational experiences and practical field endeavors contained in the background of the university students and agency personnel, respectively. In addition, the internship experiences comprise the major portion of training which will enable the students to gain knowledge of the field in applying the skills learned. The internship will provide the agency personnel an opportunity to practice the various strategies gained from the more formal training atmosphere in settings comparable to that of their particular agencies.

The following discussion considers each of the training modules in sequential order, the content and proposed length of each module, and the desired terminal behavior for an individual completing the unit of training.

1. ORIENTATION TO RDD&E -- Developer: Southwest Educational Development Laboratory

Module 1: "Definitions" 1/2 hour

Content: Material and practical exercises through which trainees may learn terms related to RDD&E in education and how to use the terms appropriately will be developed for this course.

Terminal Behavior: The individual will be able to use the terminology related to the general processes to RDD&E in education in correct context.

Module 2: "History and Process" 1 hour

Content: Background information surrounding the historical development of research, development, diffusion, and evaluation in education and the basic data for an understanding of the developmental process are planned for this course.

Terminal Behavior: The individual will be able to state clearly the traditional uses of RDD&E in education and demonstrate the ability to outline the developmental process.

Module 3: "Written Applications of R&D" 1/2 hour

Content: The trainee will be given problems to solve which will be similar to a typical use of each of the RDD&E strategies.

Terminal
Behavior: The individual will be able to describe in writing or orally typical examples of RDD&E problems in education.

Module 4: "Video Tour of R&D Process" 1/2 hour

Content: A guided tour on video tape of an example of the R&D process in education. This will illustrate for the trainee, in a step-by-step fashion, the scope of information which would be relevant to an individual in any of the RDD&E positions.

Terminal
Behavior: The individual will have a more thorough understanding of the ways in which the R&D process occurs in actual field situations.

Module 5: "Test Definitions & Review, Evaluate" 1/2 hour

Content: This course will contain either a written or oral examination of the content covered in Modules 1-4. It also will provide a general review of the materials contained in Modules 1-4 and provide the trainee with an opportunity to evaluate the content obtained from these modules.

Terminal
Behavior: The individual will have an approximate quantitative understanding of the scope

of the RDD&E process and a basis for the evaluation of his understanding of that process and how it relates to his particular agency or projected work setting.

Module 6: "Identify R&D Staff (usage)" 1 hour

Content: This course will provide the individual with various strategies for analyzing R&D staffing patterns within an agency setting and also will contain information concerning the ways RDD&E personnel are used.

Terminal Behavior: The individual will be able to employ one or more analytical techniques used to assess the R&D staffing in an agency similar to that for which he is being trained. He also will be able to project the ways that RDD&E staff are used in those agencies.

Module 7: "Identify Available Training" 1/2 hour

Content: The individual will be provided with various techniques to discover and investigate existing training available for staff involved in RDD&E functions.

Terminal Behavior: The individual will be able to list available training for RDD&E staff and to demonstrate the ability to designate which training is appropriate for various RDD&E staff, relative to his function within a particular agency.

Module 8: "Identify Jobs of R&D Staff" 1 hour

Content: This course will contain information concerning ways to identify specific jobs and functions of R&D staff within various agency and institutional settings.

Terminal Behavior: The individual will be able to identify specific jobs and R&D staff functions of personnel involved in educational research and research-related fields. He also will be able to evaluate the relevance of specific jobs and staff functions in that particular agency.

Module 9: "Review Staffing Patterns" 1/2 hour

Content: This will be a general review of the staffing patterns of various agencies and institutions employing RDD&E personnel. It will provide the trainee with the integration of the course content contained in Modules 6-8.

Terminal Behavior: The individual will be able to list the techniques for analyzing R&D staffing patterns within various agencies and institutions, to identify the specific job areas of RDD&E personnel in education, and to define their respective functions within those agencies.

Module 10: "Two R&D Staff Problems for Decisions" 2 hours

Content: This course will contain two simulated problems related to the staffing, functions, and roles of RDD&E personnel employed in an agency or institutional work setting. The trainee will be given a specified time period in which to delineate the agency's use of the personnel, state the problem in the nomenclature appropriate to RDD&E, and provide alternative solutions for alleviating the difficulty proposed.

Terminal Behavior: The individual will be able to demonstrate that he can both analyze and provide alternative solutions and strategies for RDD&E staffing problems as they occur in various agency and institutional environments. He also should demonstrate the ability to apply his knowledge of specific RDD&E strategies to his own agency or projected work setting.

2. CONCEPTUALIZATION OF GOALS AND PROCESSES IN EDUCATION --
Developer: Arizona State University

Module 11: "Definitions and Examples" 1 hour

Content: This will be a presentation of the nomenclature used to describe the objectives and processes utilized

in agencies and institutions involved in educational research and research-related activities. Examples of these objectives and processes will be given in order to further illustrate the meaning of the terminology.

Terminal Behavior: The individual will be able to use the terminology in its correct context as it is applied to conceptualizing goals and processes in education. He will also be able to provide practical examples of these terms.

Module 12: "Problem Identification & Goal Statement" 10 hours

Content: This will provide the trainee with techniques and skills necessary for identifying typical examples of RDD&E problems in education. Practical exercises will be given for utilizing these acquired skills. In addition, an extensive examination of the types of goals set by various agencies and institutions will be undertaken and their objectives stated as they relate to one or more of the RDD&E activities.

Terminal Behavior: The individual will be able to identify various problems of RDD&E staff in education and also identify problems of various agencies utilizing RDD&E staff. He should also be

successful in stating the objectives of the agencies employing RDD&E staff in terms of the overall goals as they exist and the agencies' plans for the future.

Module 13: "Overview of RDD&E Strategies" 4 hours

Content: This course will cover the broad application of each following strategy: research, development, diffusion, and evaluation. It will detail the various ways that these strategies are employed and illustrate, with examples, activities where these functions overlap.

Terminal *Behavior:* *The individual will* be able to describe in some detail each of the RDD&E strategies. He will be able to illustrate the various strategies used for approaching certain defined problems.

Module 14: "Research and Evaluation" 10 hours

Content: This course will be an in-depth analysis of the research-evaluation strategy in the field of education. It will provide practical knowledge and information on how to evaluate research activities and relay the various ways in which research and evaluation are contingent upon each other. Actual simulated exercises will be carried

out to provide the trainee with additional practice and utilization of the research and evaluation skills.

Terminal Behavior: The individual will demonstrate the ability to define and apply research and evaluation strategies as they relate to goals and processes in education. He will be able to apply these skills in a simulated situation similar to his particular agency or projected work setting.

Module 15: "Development and Evaluation" 10 hours

Content: This course will be an in-depth analysis of the developmental strategy in education and ways to evaluate that approach. Examples of the interrelationship of these strategies will be provided with additional practical exercises in how to apply development and evaluation as they relate to a specified agency and institutional goals.

Terminal Behavior: The individual will be able to define and apply the development-evaluation strategy in a simulated activity comparable to his particular agency or projected work setting.

Module 16: "Diffusion and Evaluation" 10 hours

Content: This course will be an in-depth examination of the diffusion-evaluation strategy. The content will be integrated with respect to defined agency and institutional goals and processes.

Terminal Behavior: The individual will be able to define and apply diffusion-evaluation strategy as it relates to educational goals and processes in a simulated situation comparable to his particular agency or projected work setting.

Module 17: "Systems & Model Development" 5 hours

Content: This will contain information and techniques in the analysis of educational systems and models for educational systems which might be developed.

Terminal Behavior: The individual will be able to list and apply a generalization of one or more of the processes to an educational system or model to be developed.

Module 18: "Use of Consultants" 5 hours

Content: Course materials for this module will contain information pertinent to the use of consultants in the area of

conceptualizing goals and processes in education.

Terminal Behavior: The individual will have the ability to identify the kinds of information he might gain from using a consultant and to identify the most appropriate time for a consultant to be used to assist in conceptualizing an educational problem and its solution.

3. DEVELOPMENTAL CONCEPTION & DESIGN IN RESEARCH -- Developer: Educational Development Corporation

Module 19: "Definitions" 1 hour

Content: This course will contain the basic terminology used in design methods in education and the nomenclature of statistics associated with those design methods.

Terminal Behavior: The individual will be able to use the statistical and design terminology in correct context.

Module 20: "Delineating the Design Problem" 10 hours

Content: This course will cover the material necessary for the trainee to understand the various components of the design problem.

Terminal
Behavior: The individual will be able to state clearly the components of the design problem.

Module 21: "Applications to RDD&E" 10 hours

Content: This course will cover the various ways that design methods are applied to research, development, and diffusion strategies in education. These various design methods will be presented as evaluation techniques.

Terminal
Behavior: The individual will have the ability to apply various design methods to problems appropriate to evaluating the strategies of research, development, and diffusion in education.

Module 22: "Interpreting and Drawing Conclusions from Data Analysis" 5 hours

Content: This course will include information regarding designs for RDD&E in education, along with methods for analyzing statistical data pertinent to those designs. It will provide additional information necessary to identifying the appropriate audience and communicating findings to that audience.

Terminal
Behavior: The individual will have the ability to take a design from RDD&E together with the statistical data and combine these into an interpretive format that communicates the findings to both a technical and a nontechnical audience.

Module 23: "Use of Consultants" 5 hours

Content: Course material for this module will contain information pertinent to the use of consultants in the area of developmental conception and design in research.

Terminal
Behavior: The individual will have the ability to identify the kinds of information desired from a consultant and the most appropriate time a consultant would be used to assist in the developmental conception of an RDD&E project in education or a design in research.

The following modular units will not be developed as a part of the proposed training program, due to financial limitations. Under an optimal system of training, however, the content of these units would become an integral part of the component, "Developmental Conception and Design in Research." The proposed training system requires that the individual

entry level for this component be a minimum of successful completion of nine hours of statistics and an understanding of various design methods. If the minimum entry level for this component were lowered to include a wider variety of trainees, then the following proposed modules would become a part of this component for training.

ADDITIONAL MODULES -- Developer: None	Hours
"Descriptive Methods"	15
Terminal Behavior: The individual would be able to describe and use descriptive methods.	
"Applications to RDD&E"	15
Terminal Behavior: The individual would have the ability to apply descriptive methods appropriately to RDD&E problems.	
"Statistical Inference"	15
Terminal Behavior: The individual would have the ability to apply statistical inference to RDD&E problems.	
"Anova"	15
Terminal Behavior: The individual would have the ability to apply analysis of variants to RDD&E problems.	
"Regression"	15
Terminal Behavior: The individual would have the ability to apply regression techniques to RDD&E problems.	

ADDITIONAL MODULES (cont.) Hours

"Non-parametric Methods" 15

Terminal Behavior: The individual would have the ability to apply non-parametric methods to RDD&E problems.

These additional modular units would take approximately 90 additional hours of training. Limitations of cost, however, preclude the development of these materials, and a higher entry level must be assumed.

The following is a continuation of the proposed training system which will be developed.

4. OBJECTIVE SETTING TO DEVELOP INSTRUCTIONAL SYSTEMS -- Developer: Educational Development Corporation

Module 24: "Definitions" 1 hour

Content: This course would contain the terminology used in specifying particular objectives of the educational process. The nomenclature would reflect the relationship of objective setting to the development of instructional systems.

Terminal Behavior: The individual would be able to use the terminology of objective setting in correct context.

Module 25: "Instructional Systems Approach" 5 hours

Content: This course will contain information on the objectives of designing an instructional system.

Terminal
Behavior: An individual will be able to identify and describe the basic characteristics of the objectives in an instructional system.

Module 26: "Design Instructional Sequence" 5 hours

Content: This course will contain information on how to design an instructional sequence, with specific details on specifying objectives, entry behaviors, and sequencing objectives.

Terminal
Behavior: An individual will be able to describe and use, with specific problems, the steps to design an instructional sequence, including specifying objectives, determining entry behaviors, and sequencing objectives.

Module 27: "Design Instructional Context" 5 hours

Content: Information on the techniques used to design the instructional context with particular emphasis on the relationship of that activity to objective setting in developing instructional systems will be given in this course.

Terminal
Behavior: The individual will be able to describe and use with specific problems the steps

to design an instructional context to be an integral part of the instructional system.

Module 28: "Integration of Sequence & Context" 5 hours

Content: This course will provide the basic skills and understanding necessary for the integration of sequencing of objectives in an instructional systems design and the establishment of an instructional context.

Terminal Behavior: The individual will be able to combine, using specific problems, the skills achieved as a result of Modules 26 & 27.

Module 29: "Applications of Objectives to RDD&E" 10 hours

Content: This course will provide practical examples and opportunities for practicing the application of the objectives in an instructional systems design to the strategies of RDD&E.

Terminal Behavior: An individual will be able to apply the instructional systems approach to problems appropriate to his particular agency or projected work setting.

Module 30: "Use of Consultants" 5 hours

Content: This course will provide information appropriate to the use of consultants in designing an instructional system.

Terminal Behavior: The individual will have the ability to identify the kinds of information desired from a consultant and the most appropriate time for a consultant to be used to implement objective setting in designing an instructional system.

5. DESIGN AND ANALYSIS -- Developer: Educational Development Corporation

Module 31: "Definitions" 1 hour

Content: This course will provide the basic terminology used in design and analysis of the RDD&E activities in education and the appropriate nomenclature necessary in the application of statistical techniques used in design and analysis.

Terminal Behavior: The individual will be able to use the terminology of design and analysis and the appropriate statistical techniques associated with that process in the correct context.

Module 32: "Delineating the Problem to be Evaluated" 5 hours

Content: This course will provide information on the strategies used to define the RDD&E problem for analysis and evaluation.

Terminal Behavior: The individual will be able to employ correctly one or more of the defined strategies to an RDD&E problem for evaluation.

Module 33: "Types of Evaluation Instruments" 10 hours

Content: This course will provide information on the various types of evaluation instruments and their usage in evaluation of RDD&E activities.

Terminal Behavior: The individual will be able to list the various kinds of evaluation instruments and to describe their characteristics. He also should be able to apply one or more of these instruments to a particular simulated situation similar to one in his own agency or projected work setting.

Module 34: "Applications to RDD&E" 15 hours

Content: This course will provide examples and practical exercises relevant to the application of design and analysis evaluation techniques in the evaluation of various RDD&E activities in the educational process.

Terminal
Behavior: The individual will be able to demonstrate the application of design and analysis techniques in the evaluation of one or more RDD activities related to those of his particular agency or projected work setting.

Module 35: "Making Recommendations as a Result of Evaluation" 5 hours

Content: The course will contain information on the various techniques and strategies used to assess the relevance of the evaluation made and on how to decide upon and present recommendations as a result of the evaluation.

Terminal
Behavior: The individual will be able to understand and apply the results of his evaluation on a simulated problem situation and demonstrate his ability to define the appropriate recommendations resulting from that evaluation.

Module 36: "Use of Consultants" 5 hours

Content: The course will provide information on the various uses of a consultant for design and analysis in evaluation

of RDD activities in the educational process.

Terminal Behavior: The individual will be able to identify the kinds of information desired from a consultant and the most appropriate time for a consultant to be used to implement the evaluation techniques of design and analysis.

The following modules will not be developed as a part of the proposed training system. High entry levels, however, are presumed for the individuals entering the component of design and analysis. In an optimal training system it is suggested that the development of the following modular units will enhance the training and make it possible to lower the entry levels. For an individual to become trained in Modules 31 through 36, he must have had a minimum of six hours of statistics oriented toward education or psychology. These additional modular units would take approximately 90 hours of training. Limitations of cost, however, preclude the development of these materials, and a higher entry level must be assumed.

ADDITIONAL MODULES -- Developer: None Hours

"Choosing an Existing Metric"

Terminal Behavior: The individual will be able to correctly choose an existing metric for an RDD&E problem.

ADDITIONAL MODULES (cont.) Hours

"Developing Psychometric Instruments"

Terminal Behavior: The individual will be able to develop psychometric instruments appropriate to an RDD&E problem.

"Applying Psychometric Techniques"

Terminal Behavior: The individual will be able to apply psychometric techniques to an RDD&E problem.

"Applying Analytical Techniques"

Terminal Behavior: The individual will be able to apply one or more analytical techniques to a RDD&E problem similar to one that might occur in his particular agency or projected work setting.

"Using Correlation Methods in Test Analysis"

Terminal Behavior: The individual will be able to use correlation methods in the test analysis of problems related to the RDD&E activities of his particular agency or projected work setting.

"Recognizing Non-parametric Approach Situations"

Terminal Behavior: The individual will be able to recognize the appropriate times that a non-parametric approach should be applied in the analysis

of RDD&E activities in the agency or projected work setting.

"Applying Correctional Formulae"

Terminal Behavior: The individual will be able to identify the appropriate times to apply correctional formulae to the statistical analysis of data relevant to RDD&E activities and also will be able to apply them in one or more problems similar to those found in the particular agency or projected work setting.

"Utilizing Electronic Data Processing"

Terminal Behavior: The individual will be able to identify the times when the use of electronic data processing would be appropriate in assisting the design and analysis of statistical data relevant to RDD&E activities. He would also have some knowledge of how to utilize this information once it has been processed by a computer.

These are the additional modules which would be proposed to enhance the effectiveness of a training system. They are intended as examples of additional training material which could be developed were an optimal training system to be effected.

The following is a continuation of the modular units of training which will be developed as a part of the proposed training system.

6. SUMMARY AND COMMUNICATION OF OUTCOMES -- Developer: Louisiana State University

Module 37: "Definitions" 1 hour

Content: The content of this course will provide the basic terminology necessary to an understanding of the various types of communication available and of the correct terms to apply to the outcomes of a project related to RDD&E activities in education.

Terminal Behavior: The individual will be able to demonstrate his understanding of the various communication techniques utilizing the proper terminology and be able to summarize the results of data findings on the outcomes of particular RDD&E projects in the correct terms as they are used in the field.

Module 38: "Interpreting Findings" 5 hours

Content: This course will contain information of the various approaches used to interpret the findings of research data and assess their relative value with respect to particular educational goals and objectives.

Terminal
Behavior: The individual will be able to interpret findings in a simulated situation relevant to an RDD&E project within his particular agency or projected work setting.

Module 39: "Deciding upon Recommendations" 5 hours

Content: This course will contain material related to the various recommendations which can be made as a result of the outcomes of a particular RDD&E project in education.

Terminal
Behavior: The individual will be able to assess the outcome of a particular RDD&E project similar to one carried out in his own agency or projected work setting and make recommendations as a result of that outcome.

Module 40: "Types of Communication" 10 hours

Content: This course will provide the trainee with information on the various types of communication available to present the findings and recommendations for a particular RDD&E project.

Terminal
Behavior: The individual will be able to identify various types of communication

techniques and demcnstrate the ability to apply several of them to the presentation of findings in making recommendations appropriate to the outcome of an RDD&E project.

Module 41: "Audience Identification" 5 hours

Content: This course will provide material concerning the various ways to identify audiences to whom the information about the outcomes of an RDD&E project will be communicated.

Terminal Behavior: The individual will be able to identify both technical and non-technical audiences desiring information on the outcomes and recommendations of a particular RDD&E project. He also will be able to apply this knowledge in a simulated manner by identifying the kinds of audiences to whom he might address himself in his own agency or projected work setting.

Module 42: "Application to RDD&E" 20 hours

Content: This course will contain practical information on the uses of findings from research, development, diffusion, and evaluation projects in education. It will provide the trainee with the integration of the material contained in Modules 37 through 41.

Terminal Behavior: The individual will be able to apply the skills and knowledge necessary for the summary and communication of outcomes of an RDD&E activity similar to one occurring in his particular agency or projected work setting. He will demonstrate this ability by summarizing the findings of data analysis and making recommendations to a selected audience (one that would represent an audience he might approach in the field).

Module 43: "Use of Consultants" 4 hours

Content: This course will provide information on the various uses of consultants to assist in the summary and communication of outcomes in the RDD&E activities in education.

Terminal
Behavior: The individual will be able to identify the kinds of information desired from a consultant and the appropriate time a consultant would be useful in the summary and communication of outcomes.

7. IMPLEMENTATION OF OUTCOMES -- Developer: Southwest Educational Development Corporation

Module 44: "Definitions" 1 hour

Content: This course will provide the basic definitions of the terminology used in the implementation of outcomes of a particular RDD&E activity.

Terminal
Behavior: The individual will be able to use the terminology relevant to the implementation of outcomes in correct context.

Module 45: "Identify Application & User of Developed Product" 10 hours

Content: This course will relate the various ways to identify and establish the context and user of a developed educational product.

Terminal
Behavior: The individual will be able to identify the application and the user of an educational product and to demonstrate this ability in a simulated situation similar to

one occurring in his particular agency or projected work setting.

Module 46: "Relationship of Product to System" 4 hours

Content: This course will illustrate the relationship of various educational products to instructional systems. It also will provide the trainees with examples which occur in agencies and institutions concerned with the development of those educational products.

Terminal Behavior: The individual will be able to define and describe the relationship of various types of educational products to instructional systems and the process of RDD&E in education. He will demonstrate this ability in a simulated situation similar to one which might occur in his particular agency or projected work setting.

Module 47: "Identification of Short & Long Range Goals" 5 hours

Content: This course will provide various strategies for identifying short and long range goals within educational systems as they relate to educational products developed and the outcomes of the evaluation of the products.

Terminal
Behavior: The individual will be able to supply different strategies for identifying short and long range goals of an educational system and clearly state these objectives. He will also demonstrate the ability to communicate this information in a simulated situation relative to one in his particular agency or projected work setting.

Module 48: "Use of Consultants" 5 hours

Content: This course will provide information relevant to the use of consultants to assist in the implementation of outcomes.

Terminal
Behavior: The individual will be able to identify the types of information desired from a consultant and identify the most appropriate time a consultant would be useful in the implementation of outcomes.

This completes the listing of the modular units of training contained in each of the seven components. The last component, which is "Implementation of Outcomes," contains approximately 25 hours of training to be developed. An additional 40 hours in this component would be added under an optimal, expanded training system. These modules will not be developed, but most likely some of the material contained in them, will be relayed

through the use of other training systems that would become, after development, public domain. The additional modules for "Implementation of Outcomes" are:

"Product Testing"	. . .	5 hours
"Analysis of Field Test"	. . .	5 hours
"Implications of Product: Problems of Diffusion & Installation"	. . .	5 hours
"Communication Techniques and Process of Diffusion"	. . .	10 hours
"Incorporate Feedback"	. . .	5 hours
"Revise System for Change"	. . .	5 hours
"Install the Product"	. . .	5 hours

It should be emphasized that the proposed training system, which is characterized by individual modular instructional units, is an open-ended and flexible system. To supplement the training as it is being proposed, additional materials will be incorporated from other sources. Some of these additional training sources are:

1. Calipers: Planning the Systems Approach to Field Testing Educational Products, Southwest Educational Development Laboratory (1969).

2. RFP 70-27 Titles as they become available.

3. Portions of the CORD National Research Training Manual, A project of the RED TRAIN program (a research, evaluation, and instructional development training program), Teaching Research Division of the Oregon State System of Higher Education (1969).

4. Any other modular materials developed as a part of RFP 70-12 by other consortia or developed by other funding.

5. Additional materials that are being developed by Southwest Educational Development Laboratory will be available to be incorporated as a part of the training subsystem.

A careful review will be made to determine whether or not the above, and other additional materials, are public domain. If copyrights have been issued, individual formal arrangements will be made.

3. INTERNSHIP MANUALS AND GUIDELINES

The third major component of the training subsystem is Internship.

The materials to be developed as a general and overall guide for the internship experience are as follows:

1. A comprehensive handbook for supervisors in RDD&E activities.
2. A comprehensive handbook for interns in RDD&E activities.
3. Guidelines for the internship experience in RDD&E activities.

These documents will be products developed by Brigham Young University to be used by supervisors and interns during the internship. They will contain appropriate information toward making the internship successful by the following goals:

1. giving guidance to the supervisor in the training experiences of the intern.
2. providing suggested areas of work that the intern would carry out under the supervisor.

One strong advantage of the internship experience as a part of the training subsystem is that it allows for the maximum utilization of the trainee's background in a structured setting, combining both the skills he has developed as a result of training and his previous background knowledge and skills. The internship experience addresses itself to both categories of trainees: those from agency settings and those from the university. Agency personnel have developed, in many cases, strong skills relating to RDD&E as the individuals have participated in field applications using these skills. This is the strength of their previous background and experience. The weakness is that few have had structured or academic formal training in the functions of RDD&E in education. Few existing programs are available to fill this gap in experience, and for the most part, they have experienced only on-the-job training. After the agency personnel have completed selected modular training units, they are provided with an

opportunity to practice the newly acquired skills in an agency setting similar to the one for which they have trained. In this manner, the training is individually tailored and suited to the particular background and experience of agency personnel.

University students, on the other hand, usually have had a fair amount of formal or academic training in a structured setting relating to the RDD&E functions in education. They have little experience, however, in the applications of these skills, and often operate within purely theoretical frameworks. Once a graduate student has completed the individualized modular units of training selected, he is then ready to involve himself in an internship experience which will allow him the opportunity to practice the skills learned in actual field settings. He is able to continue his formal academic training at the same time, and therefore experience the best combination of formal training and practical experience in the application of RDD&E strategies in the field.

To evaluate the internship experiences, a series of evaluation forms will be developed to provide structured feedback to the interns, their home agency, and the training program. These forms will detail the progress achieved as a result of the internship experience. Initially, these forms will be developed at Brigham Young University by Dr. M. David Merrill during the first year of the developmental process. The rationale for utilizing these services is that the Instructional Research and Development Department at Brigham Young University has a nationally recognized quality internship program which focuses on all areas of RDD&E in education.

These materials developed during the first year will be evaluated at several sites which currently have interning activities using interns funded from other sources. These interns will be the control group for the evaluation which also will take place during the first year.

During the third year, when the test of the entire training system occurs, interns who have received the diagnostic and training processes of the system will be placed, when appropriate, in internship sites. At this time a final evaluation of the adequacy and effectiveness of the internship materials will be carried out.

The internship experience involves taking a trained individual and placing him in a position that will be similar to his projected permanent position in education as defined by the individual and agency diagnoses. The length of this internship will be based on a number of considerations:

1. the complexity of the projected job.
2. the ability of the home-agency to pay the individual's salary and his transportation while the individual is interning.

This internship experience would differ from most current internship experiences in that previous training of the individual would be specified according to terminal performance behaviors. Specific guidelines for the internship experience would be followed and the internship would be based on a clear-cut set of goals which would allow the interning agency and the intern to construct the internship experience. It should be constructed in such a way as to have each trainee return to his home agency as a competent professional in his projected position.

4. SUMMARY REPORT FORM FOR AGENCY

This product will be developed by Southwest Educational Development Laboratory during the latter part of the first year development of the training system. It will be a standard written document which outlines the major aspects of the training in which the agency has participated, the outcome of that training with respect to agency and individual needs diagnosed, and the suggested potential uses of the trainees who have completed the program. It will provide the agency with a concise summary of the trainees' progress, the training as it relates to agency needs and goals defined, and the suggested incorporation of the trainee into staffing patterns and employment setting.

The development of the components of the training subsystem will complement the development of the components of the diagnostic subsystem. This parallel development is necessary to have the training modules available in time for immediate use after diagnosis and referral. The developers of each of the products in the training subsystems are as follows:

1. Goal setting checklist - Southwest Educational Development Laboratory (Austin)
2. Training packages:
   a. RDD&E orientation - SEDL (Austin)
   b. Conceptualization of issues - Arizona State University (Phoenix)
   c. Design - Educational Development Corporation (Austin)
   d. Objective setting - Educational Development Corporation (Austin)
   e. Design and Analysis - Educational Development Corporation (Austin)
   f. Summarization - Arizona State University (Phoenix)
   g. Implementation - SEDL (Austin)
3. Internship Manuals and Guidelines - Brigham Young University (Utah)
4. Summary Report Form - SEDL

Preliminary evaluation and revision of the training modules will have been completed by June, 1972. Development, evaluation, and revision of the internship manuals and guidelines is projected for April, 1972. All components of the training subsystem will be ready for pilot testing by mid-1972 and re-evaluated and revised again by April, 1973, in time for full field testing through December, 1973.

A secondary pilot test will be made on the components of the training subsystem, which will be the service test. The following is a list of potential test sites for this evaluation of the training system:

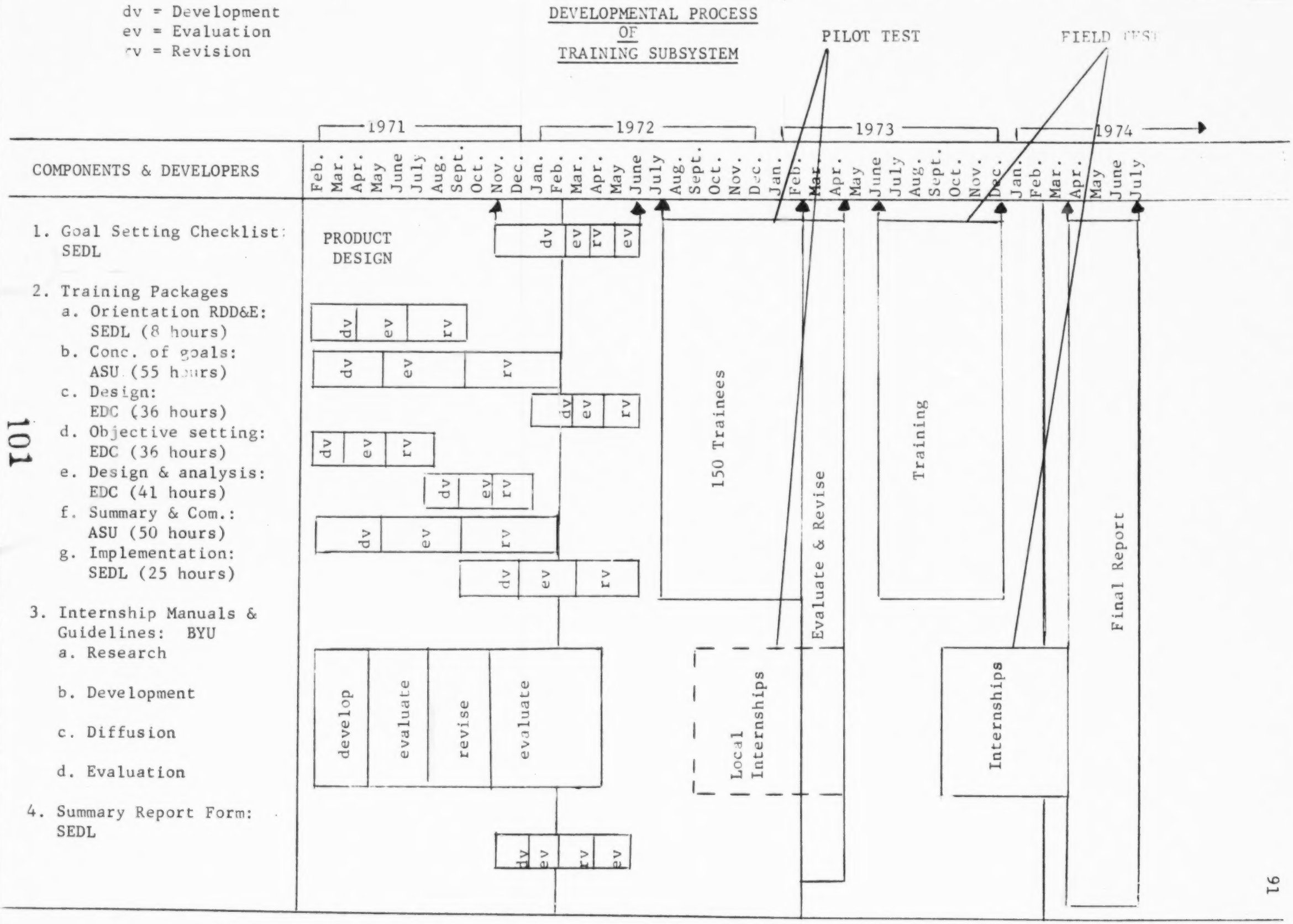
- Southwest Educational Development Laboratory
- Texas Education Agency
- University of Texas, College of Education
- Research and Development Center for Teacher Education
- Education Service Center, Region XIII
- Austin Independent School District
- Louisiana State University
- Arizona State University
- Brigham Young University
- Human Development Institute, Inc.
- Pennsylvania State Department of Education
- United States Research and Development Corporation.

The main field test of the components and the subsystem as a whole will be conducted on a nationally-selected number of agencies and institutions located near the service test sites. This main field test will take place during the third year development of the training system.

Figure 8 outlines this developmental sequence.

dv = Development
ev = Evaluation
rv = Revision

DEVELOPMENTAL PROCESS OF TRAINING SUBSYSTEM



Placement Subsystem

The placement subsystem is intended primarily as an information agent for both trainee and agency. Current information must always be available during three stages of the ongoing training program:

- the diagnosis, or pre-training stage
- during training
- post training stage.

The purpose of the placement subsystem is to provide information, through the above stages, on trainees and agencies. During the diagnosis stage, the placement function will be to maintain files on agencies that can use trainees and to provide information on the kind of internship experience they can offer. Further, continuous contacts with participating agencies will be made for referral of prospective trainees to the diagnostic subsystem.

During training, placement will maintain files on participants and the kinds of skills they are developing. Knowledge of this sort will permit placing the trainee in the proper internship position. Trainees who have developed some expertise in a particular area (or areas) will be placed only in agencies where the internship can be a suitable complement to modular training.

After training, placement will match modular training and internship experiences with agencies requesting personnel. The location of trainees will be kept in information retrieval systems along with other information pertinent to placement and can be matched very quickly with employment requests.

Similar files will be kept on agencies who have participated with the training program and on those agencies who might be potential participants. Files also will be kept on agencies and institutions who might be potential employers of trainees. Employment services are expected to be utilized; organizations such as the American Educational Research Association (AERA)

and the Texas State Teachers Association (TSTA) are examples of organizations that maintain active services for placement of educational personnel.

Another important activity will be to maintain a file of evaluation reports on individuals already graduated and placed into an agency. Supervisors will regularly assess trainees and provide copies of their evaluations to the training program. Also, trainees will be given a chance to evaluate the program and the training they received. These reports will provide an additional mechanism for a general evaluation of the training program and its success in meeting demands for trained personnel.

Developmental Process:

The proposed placement subsystem has four major components. Revisions and perhaps additional components are expected during the course of field and pilot testing. These major components are:

1. File of agencies that can use trainees, with special annotations as to particular needs, requirements, etc.
2. File of trainees completing program with their respective modular and internship experiences listed.
3. File of internship sites, with a schedule of skill areas that can be expected to be available to trainees. This information is necessary so that modular training can be matched with internship experience.
4. Evaluation forms from the supervisors of employed trainees. This information will aid in final evaluation of the entire training program. Also, trainees will be given a chance to provide evaluation data on the program(s) they participated in. At the time of completed modular and intern training, the trainee will be evaluated and this information made available for purposes of placing the individual.

The developmental sequence is geared to having the placement components functional in time for placing the first graduates of the training program's pilot test stage. This sequence, by year, is as follows:

First Year:

	Component	Developmental Stage
1.	File of agencies that can use trainees	This component will be developed by December, 1971.
2.	File of trainees completing program.	Developed by December, 1971.
3.	File of Internship sites	Developed by December, 1971.
4.	Evaluation forms for supervisors and trainees	Developed from June, 1971, to February, 1972.

STAFF: The placement subsystem, with its components, will be developed primarily by the Southwest Educational Development Laboratory with assistance from the University of Texas, College of Education and the Texas Education Agency. Laboratory personnel involved in this stage of the development process will be:

- Dr. Walter F. Stenning, Director of Training Systems Design
- Dr. Don Williams, Assistant Deputy Executive Director for Learning Systems Development and Evaluation
- Dr. Joe H. Ward, Senior Research Analyst
- C. Thomas Camp, Assistant Director, Training Systems Design
- Additional Training Systems Development Staff

Additional Contributors:

- University of Texas, College of Education, Placement Office
  Dr. A. C. Murphy and staff

- Texas Education Agency
  Dr. Irene St. Clair and staff
  (See Appendix for Vitae)

EVALUATION: No evaluation until the end of Year I and beginning of Year II.

TEST SITES: Until pilot testing, all work on components will be done at the Laboratory's office in Austin, Texas.

After prototypes are constructed, they will be utilized at consortium participants' agencies.

TRAINEES: During the first year, only those trainees selected for pilot testing of the subsystems will be placed.

Second Year:

	Components	Developmental Stage
1.	File of agencies that can use trainees	(Pilot testing of modules and placement subsystem) Preliminary evaluation and revision by February, 1973.
2.	File of trainees completing program	Preliminary evaluation and revision by February, 1973.
3.	File of internship sites	Preliminary evaluation and revision by February, 1973.
4.	Evaluation forms for supervisors and trainees	Pilot test with evaluation and revision by September, 1972.

STAFF: 1. Southwest Educational Development Laboratory

. Dr. Walter F. Stenning, Director of Training Systems Design
. Dr. Don Williams, Assistant Deputy Executive Director
. Dr. Joe H. Ward, Senior Research Analyst
. C. Thomas Camp, Assistant Director, Training Systems Design
. Additional Training Systems Development Staff

2. University of Texas, College of Education, Placement Office
. Dr. A. C. Murphy and staff

3. Texas Education Agency
. Dr. Irene St. Clair and staff
(See Appendices for Vitae)

EVALUATION: Evaluation begins with pilot testing of prototypes in late 1972. Remainder of evaluation process begins after all placement components have been developed by February, 1973. As information is available, the components either remain the same, or if necessary, are revised as evaluation information suggests, and returned to development staff at the Southwest Educational Development Laboratory for incorporation into components.

TEST SITES: Sites will be in all consortium agencies, and also with participating agencies across the country. These agencies include: Southwest Educational Development Laboratory: Texas Education Agency;

University of Texas, College of Education; Research and Development Center, University of Texas; Education Service Center, Region XIII; Austin Independent School District; Louisiana State University; Brigham Young University; Human Development Institute, Inc.; Pennsylvania State Department of Education; and United States Research and Development Corporation.

TRAINEES: All trainees in the program's pilot test as well as those in field test stage will provide immediate input into placement functions. At the end of the second year (late 1973), all trainees participating in the field test stage and later stages will provide information for placement.

Third Year:

	Components	Developmental Stage
1.	File of agencies that can use trainees	Field testing of all subsystems including placement by end of 1973.
2.	File of trainees completing program	Final evaluation by end of 1973.
3.	File of internship sites	Final evaluations completed and returned to SEDL by middle of 1973.
4.	Evaluation forms for supervisors and trainees	Final evaluation by middle of 1973.

STAFF: Same as for second year.

EVALUATION: Final evaluation of placement system to be completed by end of 1973. Revisions where necessary will have been incorporated into final placement subsystem, and fourth year will concern primarily diffusion efforts.

TEST SITES: Same as in second year and will include any additional

participants the training program has negotiated with during the first and second years of operation.

TRAINEES: All trainees in pilot and field test stages will have been processed through placement by end of third year. By this time all new trainees will have had the benefit of the subsystem's effort to utilize and coordinate all available employment placement techniques.

Pilot testing for the placement subsystems will follow the preliminary pilot testing of the diagnosis and training subsystems. Pilot testing, evaluation, and revision of the first three components of the placement subsystem will occur from November, 1970 through February, 1973. This will be conducted by SEDL. Secondary pilot testing, or the service test, will occur from February to April, 1973. All four components of the placement subsystem will be operational by June, 1973, and at that time undergo the main field test of the training system in conjunction with the other subsystems. The population for the field test will number approximately 350 trainees to be selected nationally.

The following figure illustrates the developmental process of the placement subsystem.

dv = Development
ev = Evaluation
rv = Revision

DEVELOPMENTAL PROCESS
OF
PLACEMENT SUBSYSTEM

Figure 10

Fourth Year:

The fourth year is projected only for six months and primarily will concern diffusion efforts. By the end of 1973 all components of placement will have been fully integrated into the subsystem, and in turn, with the other subsystems for a fully operational training program.

Management Subsystem

The Santa Clara Center for Planning and Evaluation at San Jose, California, will be responsible for the design and implementation of the management subsystem. A management information system (MIS) will be developed for the purpose of providing systematic feedback to project managers in the areas of local needs, trainee progress in content and internship experiences, and budgetary accountability. The design will provide management personnel with both descriptive and inferential output information upon which to base decisions concerning all aspects of the training program.

The management information system would include the following components:

1. Training Program Information Component
2. Simulation Component
3. Program Budget Component
4. Needs Assessment Component.

All the above components are considered to be of high priority in the development of a comprehensive and effective management subsystem. Due to cost limitations, however, only the Training Program Information Component will be developed and implemented. Were additional funds to be made available, the development and execution of the other three could be carried out.

The content of the MIS components is as follows:

1. Training Program Information Component will be composed of an automated student file containing an individual record for each trainee. Each record will include data on his personal background, training experience, internship experience, and a follow-up of his activities.

The purpose of the Training Program Information Component will be to provide an information retrieval system relative to the following functions:

a. The production of descriptive statistics concerned with individual and group characteristics, performance measures, and feedback to various other program components;

b. A data base that can be cross-referenced to provide information pertaining to the effectiveness of the modules;

c. The application of statistical routines to analyze alternative paths based upon background, entry level skills, and performance data contained within the system;

d. The use of standardized data collection instruments allowing comparisons and contracts to be accomplished between and within different consortium agencies;

e. A standardized data base to provide longitudinal information relative to the relationships between formal training and field experiences.

The Training Program Information Component will be an automated student file containing an individual record for each trainee. The record will include information on the individual's personal background. Relevant material for the trainee will be demographic data, academic and professional experience, organizational type, and entry level and skills, stating the purpose of his training.

Information on the individual's training experience also will be included in the student file. It will emphasize a record of the modules he has taken and account for the sequence in which these modules were completed, including the time spent with each module. A subjective attitudinal rating by the student for each module he has taken will provide one source to determine the relative success or failure of the training experience. Finally, a measure of the trainee's growth in light of pre- and post-training instrumentation will be incorporated into his file.

In addition to information on the individual's personal background and training experience, the student file will contain data on the internship experience, where appropriate. On-the-job supervisory ratings and an assessment of the internship or training by the student will be included. A record of the length of his internship experience will be made, documenting

the time for his training and for the internship.

A follow-up of the trainee's activities will be carried out several times. Information will be obtained on the type of position to which he has returned, his salary, and the overall rating on the impact of the training and internship experiences.

2. Simulation Component will be a series of simulation exercises conducted on each individual trainee. Following Year One and during Year Two in the development of the training system as a whole, it will be possible to explore alternative projected paths for each trainee, taking the information on record, to approximate the optimal path for him to take. This optimal path would reflect all the past information on his background and training experiences and represent one way that the individual might incorporate his experiences and training into short and long range goals. This component will not be developed, due to budgetary restrictions. It should be considered, however, next in priority were these limitations to be removed.

3. Program Budget Component should be developed to provide management with meaningful and reliable financial accounting system directly related to the stated goals and objectives of the project.

A standardized program structure and corresponding program code will be developed for the consortium agencies using the training program. This structure also will reflect the project objectives.

Program Planning Budgetary System (PPBS) format provides a system that will account for each program component and training module in terms of elapsed time, dollars expended, units of activity, and a degree of achievement in behavioral terms. This component, when related to data collected within the needs assessment, and training program information components, will enable further cost benefit and cost effectiveness analysis.

Again, due to financial considerations, this component will not be

developed as a part of the management subsystem. Any operation training system, however, should have the advantages offered by this component. If additional budget could be located for its development, it is strongly urged that the program budget component be included in the MIS system.

4. Needs Assessment Component should be developed for the following purposes:

   a. To provide local managers with an accurate and reliable picture of the specific RDD&E needs of the local geographic area. The selection of content modules and trainees would be based, in part, upon information provided by this component.

   b. To provide standardized data collection instruments used by the various consortium agencies. This would enable the Office of Education or other control agencies to periodically combine the data across the projects into a national picture of RDD&E needs.

The implementation of the needs assessment component would involve the design of a standardized survey instrument and the design and installation of the software package. The standardized survey instrument would be used by all training agencies. The software package would be used for the analysis and evaluation of local agency needs. Output from this local assessment would be valuable as input for the diagnostic subsystem and also utilized as input for the training program information component of the management subsystem.

It is considered that the needs assessment component is vitally important to the development of the MIS system as a whole. It will not be developed as a part of the management subsystem as proposed, but should financial resources be made available, the development and implementation of this component would increase the effectiveness of the overall training program.

Product development in the management subsystem will be implemented by Santa Clara Center for Planning and Evaluation. The center will be responsible for the development of the computer program for the management information system (MIS). The pilot testing of the MIS will be conducted at Santa

Clara using data supplied from the consortium members. This data will be supplied by Southwest Educational Development Laboratory to the Santa Clara Center for Planning and Evaluation. The organizations participating in the pilot testing of the other subsystems - diagnosis, training, and placement - will also participate as a test population for the utilization for MIS in the pilot test and service test stages. The pilot testing and subsequent revision are scheduled to occur between September, 1971 and July of 1972.

During the third year in the development of the training system as a whole, this management subsystem will be field tested as a part of the training system. Approximately 350 trainees selected nationally will provide the test population for this main field test. All the components of this MIS will be ready for field testing by April, 1973. By the fourth year the entire training program will become operational as a whole system, and the management subsystem will have been revised, evaluated, and improved by that time. The following figure is an illustration of the developmental process of the management information system.

dv = Development
ev = Evaluation
rv = Revision

DEVELOPMENTAL PROCESS OF MANAGEMENT SUBSYSTEM

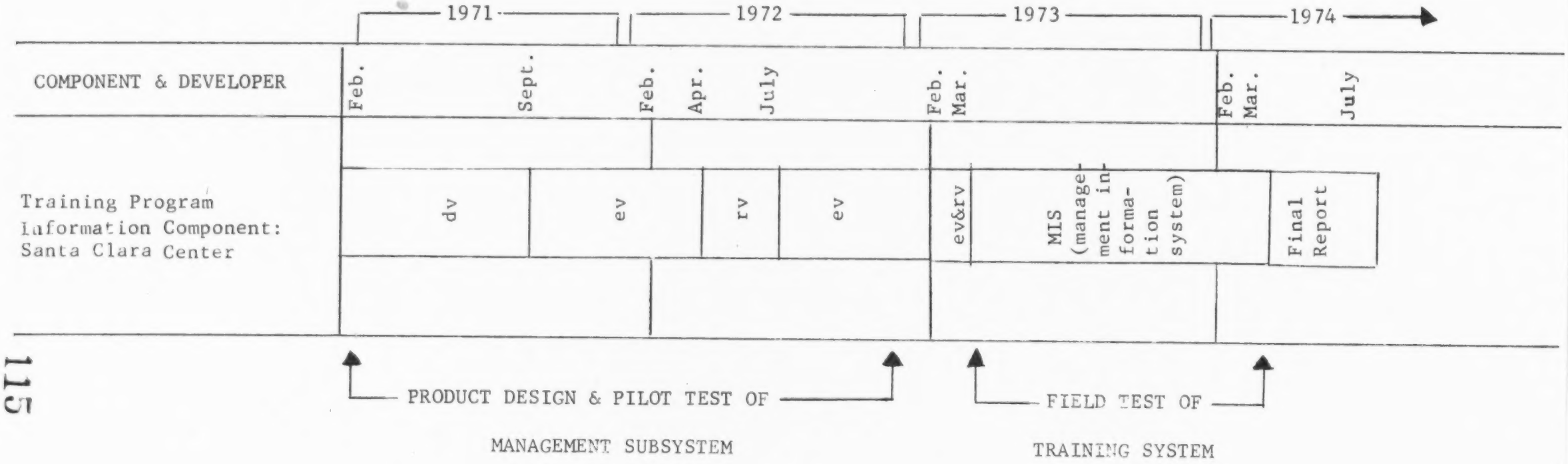


Figure 9

FIELD TESTING OF THE SYSTEM

Background and Rationale

Thus far, this document has presented the objectives of the training project. The developmental process would be carried out to meet these objectives. A brief description of the system of training, the specific content and development of each component of the training system, and a detailed description of the separate components (feasibility test) and the testing of the subsystems (service tests) have also been given. Adequate development of any system, however, requires the use of the system in total in a wide variety of sites for the purpose of evaluating the effectiveness of the system without any interaction and on-the-spot revision by the developers. During the third year of the proposed operation of the training system, a field test would be conducted in a large number of agencies and institutions to obtain a final evaluation before the training system is diffused throughout educational institutions in the United States.

Evaluation and Review of the Pilot Test

The time period between February and April of 1973 has been designated as the period in which the consortium will take all evaluation information from the pilot test phase of development and make a final review of each component, the subsystems, and the processes of the training system in order to develop a field test evaluation design. Also during this period, arrangements would be made through the involved agencies and institutions to contact other agencies and institutions within their locales to participate in the field testing of the system. Field testing of the system would begin in April of 1973 with agency and individual diagnoses.

Approximately 350 trainees, previously identified, would then take from 100 to 250 hours of training as part of their normal work schedules whether they are agency employees or students in an academic setting.

This training would occur from June through December of 1973. Upon completion of training, it is anticipated that approximately one third of these individuals would not be required to have an internship experience. Approximately one third would carry out an internship within their home agencies using the handbooks and guidelines for internship experiences described earlier, and approximately one third of the individuals would relocate at one of the following institutions for an internship experience lasting from one to six months. These institutions are:

Southwest Educational Development Laboratory
University of Texas College of Education
Texas Education Agency
Research and Develcpment Center for Teacher Education
Education Service Center Region XIII
Educational Development Corporation
Louisiana State University College of Education
Austin Independent School District
Pennsylvania Department of Public Instruction
Human Development Institute
United States Research and Development Corporation
Brigham Young University
Arizona State University

Competent supervisors who have been through the training program at the above institutions during the pilot phase of this project would be available to give specific guidance during the internship experience. The information about the backgrounds of individuals in agencies participating during the field test together with progress of individuals through training and internships would be monitored by the management subsystem. A file for location in quality educational agencies for the university-based trainees, together with an active placement center housed at SEDL, would provide placement of these trainees when they had completed the internship and their formal course work at the home institution.

Performance in regard to the training and the internship would be gathered and evaluation of the relative success of the entire program during the field test operations would be made. This information would be compiled into a final appraisal and report of the training system.

FINAL APPRAISAL AND REPORT

Educational innovations are most often not diffused because of inadequate or minimal recommendations regarding implementation and limitations. It is proposed therefore that a comprehensive final report be developed during the last six months of the training program. This final report would be based primarily on an extensive statistical and conceptual analysis of the program's field test, utilizing approximately 350 trainees who had completed modular and internship training. The emphasis of this final report would be a review of the main field tests and specific recommendations for diffusing the training system in multiple agencies and institutions throughout the United States.

Specifically, the final activities culminating in this report would be based on a clear communication of the following information:

1. Detailed Appraisal of the Field Tests: Field testing, utilizing the program's 350 trainees, is anticipated to provide comparative information on the individual's entry performance versus his performance after completion of training. The purpose is to determine whether or not training was successful in providing the skills identified as needs for both the individual and his agency.

   Also, field testing will supply information on whether training was successful in combining the individual's background with an "individualized" modular and intern package, and whether this package provided training relevant to the tasks of the particular agency.

   Further evaluation will provide information on the post-training impact of the trainee as he begins to function in his

home agency. This evaluation would be based on (a) a supervisor's rating, and (b) self-ratings according to specified criteria.

2. Strategies for Incorporation: It is also anticipated that field testing will provide information on the problems and limitations of placing the entire training system -- as a functioning whole -- into nationwide agencies and institutions.

A portion of this section of the final report would deal with the problems and necessities of placing such a training system in educational laboratories, R & D centers, state agencies, schools and school systems, and private agencies. The other portion of the report would address the problems of incorporating the training program into college and university settings as part of academic programs for RDD&E training.

3. Budgetary Estimates for Diffusion: Field testing would provide realistic costs for materials. This information could be used by agencies and institutions in judging the financial costs for installation and operation of a training program suited to their particular needs.

4. Further Materials Development: It is also anticipated that during the pilot and field test phases, additional needs would become apparent in relation to skills training. This evolution of additional skill-needs would comprise a separate section of the final report and permit future policy maker[illegible]d developers to focus upon practical additional materials for [illegible]e training of RDD&E personnel.

5. Diffusion as Separate Products: It is also anticipated that some agencies and institutions would not want to use the entire training system with its subsystems for diagnosis, management,

and placement. Detailed consideration would be given in the final report to the use of separate training components or perhaps subsystems. Data from evaluation would provide feasibility information on costs and implementation difficulties for individual component use.

A series of recommendations and costs for each component would appear in the final report. Information on this would be gathered during the pilot and field testing.

SUMMARY AND CONCLUSIONS

The training consortium led by the Southwest Educational Development Laboratory has designed a plan for a comprehensive training system to develop increased proficiency of educators involved in one or more aspects of research, development, diffusion, and evaluation. Specifically, the following points have been discussed in detail in Volumes I and II of this report.

1. Needs. After a systematic review of the literature relative to RDD&E needs was made, a coherent pattern of needs was found to exist. The training consortium also conducted face-to-face interviews in nationally selected agencies and institutions. The findings of this interview survey paralleled those of the literature review in showing that a great need existed for individuals trained in crucially-needed skills. The review also showed that the needed skills were not directly related to any one field such as research or diffusion, but that they overlapped most of the fields.

These needs were identified in multiple types of agencies including school districts, service centers, state education agencies, federally-funded R & D centers and regional laboratories, and private educational institutions.

A further finding was that students within universities and colleges, whose life goals were to be involved in one or more phases of RDD&E, were not being trained adequately in these skill areas.

From this intital base of information, the training system was developed to meet these needs.

2. Training System. The training consortium led by SEDL conceptualized a training system composed of four subsystems that could be developed to fill the needs described in the research findings. The system would contain a diagnostic subsystem to determine the training needs of any particular agency or individual, as well as the strengths and weaknesses of individuals, and procedures to fulfill the needs of the agency through use of available personnel to be trained. Diagnoses of students in colleges and universities would be based on their perceived career goals and on their individual strengths and weaknesses. From this information, an individualized prescription of training would be derived for each potential trainee.

The training subsystem conceptualized by the consortium would contain 48 modules that could work toward fulfilling demands for particular RDD&E skills. This conceptualized series of training packages would present 25 hours of training. This depth of training is not considered optimal. Volume II contains descriptions of additional modules that should be developed for a more comprehensive system. Budgetary limitations, however, required a reduction of the number of hours of training to a level which could feasibly be developed under the current fiscal constraints.

The training modules would be used by individuals at their agencies or at their universities as a part of their regular work or class schedule. After the prescribed training had occurred, an individualized internship would follow either at the home agency or at another agency. This would be for a period of one to six months, allowing the individual's previous background

and modular training to culminate in a meaningful internship experience supervised by persons who had previously been through the training program.

A placement subsystem was conceived to allow for systematic placement of the individual students from colleges and universities into agencies where they could best use their training. This subsystem would also contain files of all previous trainees and institutions; it would also collect follow-up information on the relative success of the training program.

The management subsystem was designed to monitor the students' progress throughout training, and provides continuous evaluation data on the training system in addition to allowing for cost effectiveness reports of the operationalized system. The conceptualized system would take 42 months to develop.

3. Product Design. The training system described above would be developed on a step-by-step basis using the developmental process evolved over the last five years by the Southwest Educational Development Laboratory. As part of this process, specifications for each component of the subsystems were established. The content entry and terminal behaviors of each component were specified with regard to the diagnostic and training subsystems. Specifications for the management and placement subsystems were also presented. The first activity of the training consortium, upon funding, will be the development of prototypes of each component for every subsystem. A major part of the activities for the first 18 months of the operation of the system would involve these design efforts together with the first level of pilot or feasibility testing.

4. Pilot Test. Feasibility testing and revision of each component of the system will continue until an appropriate level of performance has been achieved. At that time a second level of pilot testing, termed service testing, will occur. The various components are placed within their respective subsystems and used by agencies and institutions participating in the training consortium. It is anticipated that approximately 100 trainees will be involved in this service testing. An extensive evaluation and review of the entire operational process will occur after service testing to prepare for a carefully-controlled field test of the training system.

5. Field Test. During the third year of the program, approximately 350 individuals will undergo training from the entire training system. These persons will be from agencies and institutions in close proximity to the organizations participating in the training consortium. Upon completion of this field testing, a final appraisal and report will be prepared for the U. S. Office of Education and other interested professionals which will describe in detail the strengths and limitations of this training system. Applications for installing this system on a nationwide basis, both in educational agencies and in universities, would be made.

6. Funding. The proposed funding level for the implementation of this training system is far from optimal in the view of the consortium members. A number of important modular packages for training have been omitted by necessity, and the number of internship experiences for the purpose of field testing have been reduced to a minimal level. The management subsystem was

originally conceived to allow for more systematic evaluation and simulation of trainees as part of the operational process. All of these developmental and evaluative efforts were considered to be lower priority and because of budgetary limitations were not proposed in the scope of work contained in Volume II. The training consortium led by SEDL would strongly recommend that these additional components and procedures be incorporated into the operation of the training system.

A number of conclusions can be reached from the design phase of the training project. These conclusions concern the training of RDD&E individuals throughout the United States.

1. Training needs are not being met based on the ability to function successfully in agencies and institutions conducting RDD&E activities. Although clearly defined in multiple publications, these needs are not being addressed within academic settings or within agencies as part of on-the-job training.
2. It is the judgment of the training consortium that the proposed system of training outlined in Volumes I and II would directly address the needs for RDD&E functions.
3. The proposed training system would have the unique advantage of being highly flexible in its ability to incorporate other training products that are available. Such products could become available through concurrent efforts by other consortia funded by the U. S. Office of Education, by private developers, and by innovative programs being developed within colleges and universities.
4. The proposed training program would be exportable when completed. As part of the developmental cycle, the training system will have

been field tested in various agencies and universities throughout the country. Information from such field tests would facilitate diffusion of the training system into other similar agencies and institutions.

5. As with the whole training system, individual components and subsystems will have been field tested individually. Having been tested independently, the products could be diffused as separate units for agencies who could not effectively utilize the complete training package.

6. Over the projected 42-month development period, approximately 500 to 550 individuals would have received some combination of modular and internship training. It is expected that these individuals would have developed urgently needed skills in RDD&E. Therefore, at the end of the 42-month period, not only trained personnel, but tested components, and a tested training system would have been derived from the operationalized training program.

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Appendix A

Interview Site Distribution

INTERVIEW SITE DISTRIBUTION

Area and Agency				Location	Interviewer	His Affiliation
East	Midwest	West	South			
			Superintendent of schools	Columbia, S. C.	Marshal Ashley	Austin Independent School District
	Superintendent of schools			Pontiac, Mich.	Nick Wittner	Austin Independent School District
		Superintendent of schools		San Bernardino, Cal.	Mike Clark	Austin Independent School District
		U. of California at Berkeley R&D Center		Berkeley, Cal.	Mike Clark (for Oliver Bown)	University of Texas R&D Center
		U. of Stanford R&D Center		San Francisco, Cal.	Mike Clark (for Oliver Bown)	University of Texas R&D Center
Erie Lab				Syracuse, N. Y.	Gene Hall (for Oliver Bown)	University of Texas R&D Center
U. of Pitts-burgh R&D Center				Pittsburgh, Pa.	Gene Hall (for Oliver Bown)	University of Texas R&D Center
		Oregon State Department of Education		Salem, Ore.	Jim Clark (for Harlan Ford)	Texas Education Agency

INTERVIEW SITE DISTRIBUTION

Area and Agency				Location	Interviewer	His Affiliation
East	Midwest	West	South			
		Colorado State Department of Education		Denver, Colo.	Keith Cruse (for Harlan Ford)	Texas Education Agency
Pa. State Department of Education				Harrisburg, Pa.	Irene St. Clair (for Harlan Ford)	Texas Education Agency
		Cognitive Systems Inst.		Beverly Hills, Cal.	Benjamin Fruchter (for Dorothy Fruchter)	Educational Development Corporation
	Science Research Associates			Chicago, Ill.	Judith Fruchter (for Dorothy Fruchter)	Educational Development Corporation
American Institute of Research				Washington, D. C.	Dorothy Fruchter	Educational Development Corporation
			Westinghouse Learning Corporation	Bladensburg, Md.	Dorothy Fruchter	Educational Development Corporation
		Biological Sciences Curriculum Study		Boulder, Colo.	David Stronck (for Jackson Reid)	University of Texas College of Education
		Earth Science Educational Program		Boulder, Colo.	David Stronck (for Jackson Reid)	University of Texas College of Education

INTERVIEW SITE DISTRIBUTION

Area and Agency				Location	Interviewer	His Affiliation
East	Midwest	West	South			
	Computer-Based Education Research Lab			Urbana, Ill.	Joe Hansen (for Jackson Reid)	University of Texas College of Education
		University of Southern California		Los Angeles, Cal.	Benjamin Fruchter (for Jackson Reid)	University of Texas College of Education
		Santa Barbara County Pace Center		San Jose, Cal.	Milton Smith	Education Service Center
	Joint Counties System			Cedar Rapids, Ia.	Milton Smith	Education Service Center
	Joint Counties System			Davenport, Ia.	Milton Smith	Education Service Center

GEOGRAPHIC DISTRIBUTION OF AGENCIES: East - 4
Midwest - 5
West - 10
South - 2

Appendix B

Interview Instrument

INTERVIEW SCHEDULE

July, 1970

Southwest Educational Development Laboratory
Austin, Texas

TO: Consortium Members - RFP 70-12

DATE: July 24, 1970

SUBJECT: RFP 70-12 -- RATIONALE FOR INTERVIEW RESEARCH SURVEY

READ CAREFULLY BEFORE CONDUCTING INTERVIEW

This overview should supplement the Consortium members' understanding of the tasks to be performed and the information required from the respective interview sessions. The basic format for the interview is structured to facilitate obtaining specific and relevant information which will be evaluated and synthesized. A matrix analysis is attached to the enclosed material to indicate geographical distribution of interviews. Some entries are tentative and/or incomplete at this time. As the RFP 70-12 Proposal indicates, the interview research survey is part of the initial stage in the developmental process. Through interview interactions, the Consortium should gather data which can be used to analyze the national needs for RDD&E personnel at specific educational levels, the requirements for training them, and the strategies around which programs can be designed. The developmental phase of the project requires that the Consortium give attention to two general points: (1) that each member of the Consortium be or become aware of national needs in terms of educational level, experiences, and certain defined skills; (2) that consideration be given for additional training to all educational entry levels in order to produce a competent, functioning person in RDD&E. The following points specifically set forth instructions of the rationale:

1. The first objective is to obtain a better definition of entry levels in terms of the educational background and the particular kinds of experience. For example, if a person has the educational background required, what skills does he need and how are these needs met? Does the person's experience partly or

totally satisfy the skill-need? (i.e., Will high school graduates or persons with two years college, etc., be employed? Information must be obtained for all educational levels. Interviews should be conducted with this in mind.)

2. In determining the first objective one should clarify the kind of agency, i.e., school, service center, lab, etc., for which these skills are needed.

3. By what methods are new programs (as opposed to normal operation) designed? How are new programs evaluated? In other words, is on-the-job training done in relation to the development of new programs or in relation to existing personnel needs? The interviewer should clearly make that distinction.

4. Attention should focus on identification of the persons who need to develop new skills. What are the functions of these individuals? Is the agency able to attract the kinds of persons with the skills needed? Focus should be on the kinds of tasks to be done rather than on traditional qualifications (e.g., degree programs, educational experiences, work experiences). Does a gap presently exist between the people now employed for new programs of RDD&E and the skills required for RDD&E? If qualified personnel are available for some tasks, training attention should be redirected toward those skills most difficult to obtain.

5. The interviewer should talk to at least two persons who function in a supervisory, decision-making capacity and to at least one who functions as a worker. The latter individual might provide first-hand information on what kinds of skills he had to develop and on specific job descriptions. Supervisory personnel should have some responsibility in hiring, training, or retraining for new programs. Individuals interviewed should talk about specific job functions so that the interviewer can obtain a comparative and complete understanding after talking with workers.

6. All entry levels from high school level through Ph.D. are important to the survey to obtain an overview of the full range of roles performed. The structured interview will provide the function and design of these roles.

The interview should follow the guidelines of the instrument as closely as possible to maintain consistency and uniformity among reports when returned.

INSTRUCTIONS TO INTERVIEWER

This interview schedule is structured with key questions to which you will be addressing yourself during the course of the interview sessions. These sessions will be conducted with key decision makers and workers in the organization who have knowledge of personnel requirements, functions, skills, etc.

For each of the questions structured in this schedule and for others which may ensue as a result of the session, reference must be made to each of the educational entry levels in the taxonomy. Space is provided for responses to items to be categorized according to the appropriate entry level.

You are urged to use the interview schedule during the course of the interview sessions in order to capitalize on the recency of responses and observations made during these sessions. This interview schedule will also serve as the basis for the report to be submitted for each of the site visits.

If you should have questions after reviewing the instrument and before administering it, please call Tom Camp -- SEDL, 476-5478, Ext. 76, 77, 42.

---

1. Site: (Name of Organization) _____

2. Location: _____
   (State) (City)

   _____ _____
   (Street Address) (Phone)

3. Consortium Member: _____
   (Last Name) (First Name)

4. Dates of Visit: _____

5. Persons Contacted:

   a. Name: _____
      Official Title: _____

   b. Name: _____
      Official Title: _____

   c. Name: _____
      Official Title: _____

INTERVIEW FOCUS

ORGANIZATIONAL CHART

RESEARCH ACTIVITIES

PROGRAM DEVELOPMENT ACTIVITIES

EVALUATION ACTIVITIES

DIFFUSION, EXPORTING

STAFFING,

FUNCTIONS

- EDUCATIONAL ENTRY LEVELS
- EMPLOYMENT HISTORIES
- EXPERTISE

- COMPETENCIES
- JOB DESCRIPTIONS
- TRAINING PROGRAMS

Beginning the Interview

I. Focus on the general overall scope of the organization with respect to the developmental process. Does the organization engage in which of the following?

YES	NO	
( )	( )	Research activities
( )	( )	Program Design
( )	( )	Program Development
( )	( )	Evaluation functions

Other: _____

II. How is the organization structured? (SKETCH ORGANIZATIONAL CHART IF NECESSARY) Do the organization units consist of divisions, branches, sections, etc., and do they exist as separate functional entities?

III. IDENTIFY AT LEAST THREE MAJOR DECISION-MAKERS WHO REPRESENT DIFFERENT PHASES OR FUNCTIONS OF THE ORGANIZATION'S FOCUS.

IV. CONDUCT THE INTERVIEW SESSIONS WITH EACH OF THE PERSONS USING THE INTERVIEWING GUIDELINES AS PROVIDED IN PAGES _____ AND _____.

1 - Areas of Specialization (For each educational level)

1-1. What are the different fields of specialization represented within this organization (that is, major area of study in school)? (USE BROAD GENERAL CATEGORIES IF TOO NUMEROUS, E.G., SOCIAL SCIENCES, EDUCATION.)

1-2. To what extent do these fields bring into the organizational function a "goodness of fit," that is, how adequately do they satisfy the skill requirements of this organization?

1-3. Which particular fields of study contribute more to the organization's goals or functions (in terms of skills)? (Natural Science, Social Sciences, Education, etc.)

High School

College-2 Yrs.

College Grad.

Grad.-1 Yr.

Grad.-2 Yrs.

Grad.-Ph.D.

1-4. Which particular fields of study tend to contribute less to the organization's goals or functions (in terms of skills)?

1-5. Assuming that different persons possess varying numbers of skills, from which disciplines do your personnel bring with them a greater number of skills?

1-6. To what extent does the prior work experience which your staff brings into this organization supersede the skills developed as a result of particular fields of study (or vice versa).

1-7. To what extent does either of the two (underlined in Item 1-6, whichever is more contributive) satisfy your skill-requirement for the different functions within this organization?

High School 162

College-2 Yrs.

College Grad.

Grad.-1 Yr.

Grad.-2 Yrs.

Grad.-Ph.D.

1-8. Do you perceive certain idiosyncratic characteristics of this organization for which typical educational fields and/or prior work experience do not satisfy your skill requirements.

2 - Prior Work Experience (For each educational level)

2-1. What "weight" do you place on prior work experience in relation to the specific educational level and area of specialization?

2-2. Generally, how much time does it take for new staff members to develop skills required in their jobs?

2-3. Do you perceive a discrepancy between the specific skills required in certain functions and the skills which they bring into this organization as a result of previous work experience? What skills?

3 - Specific Functions

3-1. Describe each of the major functions which require certain skills difficult to find in personnel.

High School

College-2 Yrs.

College Grad.

Grad.-1 Yr.

Grad.-2 Yrs.

Grad.-Ph.D.

3-2. Do you know of certain skills which are needed in order to perform more effectively and for which there is a need to develop some training programs? (List educational levels and skills needed.)

4 - Training Programs (For each educational level)

4-1. What training is given your staff? Describe (for each educational entry level).

4-2. What are the specific objectives of these training programs, and in what specific skills and to what levels are they trying to develop the staff?

4-3. Are these training programs implemented by personnel from this organization?

4-4. Are these training programs exportable, as a module, to other institutions, agencies, etc.?

High School

College-2 Yrs.

College Grad.

Grad.-1 Yr.

Grad.-2 Yrs.

Grad.-Ph.D.

4-5. What are some of the constraints which you face in implementing these types of training programs, e.g., trained personnel to implement the programs, hardware, software, costs, etc.?

4-6. What alternate types of training programs do you have a need for but which you are not able to implement at this time?

4-7. How do these training programs relate to the varying educational entry levels which you may have within this organization? Do they focus specifically on certain levels?

4-8. On the basis of data from Items 4- and 4- , illustrate the primary focus of the training programs. (For example, "Low Experience/Non-College Graduate = Program "A").

Work Experience	Educational Entry Level		
	H.S. -	College Degree + BA, BS	Ph.D.
Low			
High			

High School

College-2 Yrs.

College Grad.

Grad.-1 Yr.

Grad.-2 Yrs.

Grad.-Ph.D.

REPORT SUMMARY

Educational Level	High School	College 2 years	College Graduate	(1 year) Graduate	(2 years) Graduate	Doctorate
1 - Areas of Specialization (formal education)						
2 - Prior Work Experience						

Educational Level	High School	College 2 years	College Graduate	(1 year) Graduate	(2 years) Graduate	Doctorate
3 - Specific Function (without organization)						
4 - Training Programs						

Appendix C

Vitae on Resource Personnel

Following are the vitae on all persons at the Southwest Educational Development Laboratory who have been or will be involved in the training project:

. Robert S. Randall

. Don Williams

. Walter F. Stenning

. C. Thomas Camp

. Shari Nedler

. Joe Ward

. Goerge Higginson

. Dell Felder

. Martha P. Cotera

. Juan R. Lujan

. Martha Smith

VITA FORM

NAME: Robert S. Randall

Professional address/telephone: Southwest Educational Development Laboratory; 800 Brazos; Austin, Texas 476-7028

Home address/telephone: 2206 Stratford Drive; 327-2259

Personal Data:

Birthdate: June 17, 1928

Marital status: married Number of Children: five

Educational Experience:

School/degree/year:

Howard Payne College	B.A.	1957
University of Texas, Austin	M.Ed.	1963
University of Texas, Austin	Ph.D.	1964

Professional Experience:

Present position: Deputy Executive Director/Learning Systems Development and Evaluation

Previous experience:

Research Associate - University of Texas at Austin - 1962-1963

Instructor, Department of Mathematics - University of Texas at Austin - 1963-64

Assistant Professor, Department of Education - Texas A & M University - 1964-1966

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Phi Delta Kappa

Kappa Delta Phi

American Association of University Professors

American Civil Liberties Union

National Conference of Professors of Educational Administration

American Educational Research Association

Publications:

With Charles Watts, "Leadership Behavior, Problem-Attack Behavior, and Effectiveness of High School Principals," Journal of Experimental Education, Summer, 1967.

"Problem-Attack Behavior and Effectiveness of Junior High School Principals in Texas," Journal of Educational Research, December, 1967.

With John Hoyle, "Problem-Attack Behavior and its Relationship to the Sex, Prior Teaching Experience, and College Preparation of Selected Elementary School Principals," Journal of Educational Research (in press).

"An Operational Application of the CIPP Model for Evaluation," Educational Technology, July, 1969.

"Knowledge About Decision Processes and Information," The World of Evaluation Needs Reshaping, AERA Symposium, Northwest Regional Laboratory, Portland, Oregon, March, 1969.

VITA FORM

NAME: Donald H. Williams

Professional address/telephone: Southwest Educational Development Laboratory; 800 Brazos; Austin, Texas 476-5478

Home address/telephone: 2910 West Avenue; Austin, Texas 476-5186

Personal Data:

Birthdate: September 10, 1937

Marital status: married Number of children: none

Educational Experience:

School/degree/year: Sam Houston State College B.S. 1960

Sam Houston State College M.Ed. 1962

University of Texas at Austin Ph.D. 1968

Professional Experience:

Present position: Assistant Deputy Executive Director/Learning Systems Development and Evaluation

Previous experience:

Classroom Teacher - Baytown, Texas - 1960-1962

Elementary Principal - Midland, Texas - 1963-1966

Research Assistant/Governor's Committee on Public Education - Austin, Texas - 1966-1968

Research Associate - University of Texas at Austin - 1966-1968

Special Assistant to Associate Commissioner for Field

(If additional space is necessary, please attach second sheet)

Professional Experience continued:

Services - U.S. Office of Education - 1968-1969

Field Coordinator, Research and Evaluation - Southwest Educational Development Laboratory - 1969

Assistant Director, Research and Evaluation - Southwest Educational Development Laboratory - 1970

VITA FORM / Page two

Membership in professional societies/associations:

Phi Delta Kappa

Texas Association for Supervision and Curriculum Development

Texas State Teachers Association

Texas Congress of Parents and Teachers

Publications:

VITA FORM

NAME: Walter F. Stenning

Professional address/telephone: Southwest Educational Development Laboratory; 800 Brazos; Austin, Texas 476-5478

Home address/telephone: 8210 Shenandoah; Austin, Texas 454-4126

Personal Data:

Birthdate: February 19, 1937

Marital status: married Number of children: one

Educational Experience:

School/degree/year:			
	Los Angeles City College	A.A.	1959
	San Fernando Valley State College	B.A.	1962
	University of Texas, Austin	Ph.D.	1967

Professional Experience:

Present position: Director/Training Systems Design

Previous experience: Teaching Assistant, Department of Psychology - San Fernando Valley State College - 1962-1963

Instructor, Counseling Center - San Fernando Valley State College - 1963

Research Associate, Counseling Center - University of Texas at Austin - 1964-1965

Research Associate, Research and Development Center for Teacher Education - University of Texas at Austin - 1965-1967

(If additional space is necessary, please attach second sheet)

Professional Experience (continued):

Director, Development Team - Far West
Laboratory for Educational Research and
Development - 1969-1970

VITA FORM / Page two

Membership in professional societies/associations:

American Psychological Association

Southwestern Psychological Association

American Statistical Association

American Educational Research Association

Interamerican Society of Psychology

American Association of University Professors

American Association for the Advancement of Science

Publications:

With Carl Hereford, N. Seiz, and L. Natalicio, "A Cross-Cultural Comparison of the Active-Passive Dimension of Social Attitudes," Revista Interamericana de Psicologia, 1967.

With Robert Peck, "Problem-Solving Styles in Children: A Cross-National Study," Aportaciones de la Psicologia a la Investigacion Transcultural, 1967.

With Isabel Ahumada, "The Role of Authority in Projective Peer Conflict," Proceedings of the XI Interamerican Congress of Psychology (in press).

With Maria Luisa de Lara, "Relation of Birth Order to Affiliation and Achievement in Mexico and the United States," Proceedings of the XI Interamerican Congress of Psychology (in press).

VITA FORM

NAME: C. Thomas Camp

Professional address/telephone: Southwest Educational Development Laboratory

800 Brazos; Austin, Texas 476-5478

Home address/telephone: 8900 Viking Drive: Austin, Texas 836-0967

Personal Data:

Birthdate: April 15, 1943

Marital status: Married Number of children: One

Educational Experience:

School/degree/year: Stephen F. Austin State University B.S. 1965

Stephen F. Austin State University M.A. 1966

Vanderbilt University (All but dissertation) 1970

Professional Experience:

Present position: Assistant Director / Training Systems Design.

Previous experience: Senior Research Assistant, B.S. Program-Stephen F. Austin State University - 1964-65.

Teaching Assistant, M.A. Program - Stephen F. Austin State University - 1965-66.

Faculty, Department of English - University of Cincinnati - 1966-68.

Curriculum Evaluation and English as foreign language-University of Cincinnati - 1967-68.

Senior Teaching Fellow-Doctoral Program-Vanderbilt Univ. 1969-70.

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Modern Language Association

Sigma Tau Delta

Publications:

VITA FORM

NAME: Shari Nedler

Professional address/telephone: Southwest Educational Development Laboratory;
800 Brazos; Austin, Texas 476-0806

Home address/telephone:

Personal Data:

Birthdate: May 19,

Marital status: married Number of children: 3

Educational Experience:

School/degree/year: Smith College B.A.

Trinity College M.S.

Doctoral Program, Curriculum and Instruction,
The University of Texas, Austin, Texas.

Professional Experience:

Present position: Director/Early Childhood Education Program 1969-

Previous experience: Early Childhood Education Specialist - Southwest Educational Development Laboratory - 1968-1969
Program Development - A preschool program for Spanish speaking children. Good Samaritan Center, San Antonio, Texas, NIMH Project - 1966-67
Evaluator - A Preschool program for Spanish speaking children, Good Samaritan Center, San Antonio, Texas NIMH Project - 1965-66
Evaluation and Program Development for an After-School Enrichment Program for Disadvantaged Mexican American Children. Hogg Foundation. 1964-65

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

American Psychological Association

Society for Research and Child Development

American Education and Research Association

Council for Exceptional Children

Publications:

With Peggy Sebera, "Intervention Strategies for Spanish-Speaking Preschool Children," Child Development, in press

"Early Education - A Bilingual Approach," Educational Technology, in press

With R. Lindley, "Further Effects of Subject-Generated Recoding Cues on Short-Term Memory," Journal of Experimental Psychology, 1965

Nedler, S.
"A Development Process Approach to Curriculum Design." Conceptualizations of Preschool Curricula, Alyn and Bacon. (In press)

VITA FORM

NAME: Joe H. Ward

Professional address/telephone: Southwest Educational Development Laboratory; 800 Brazos; Austin, Texas 476-6861

Home address/telephone: 167 Arrowhead Drive; San Antonio, Texas

Personal Data:

Birthdate: September 2, 1926

Marital status: married Number of children: two

Educational Experience:

School/degree/year:

University of Texas at Austin	B.A.	1947
University of Texas at Austin	M.A.	1949
University of Texas at Austin	Ph.D.	1953

Professional Experience:

Present position: Senior Systems Analyst, SEDL

Previous experience: Personnel Measurement and Evaluation Psychologist Lackland Air Force Base - 1952-1955

Research Psychologist - Lackland Air Force Base - 1955-1966

Program Director/Technology Program - Southwest Educational Development Laboratory - 1966-1968

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

American Psychological Association

American Statistical Association

Association for Computing Machinery

Psychometric Society

American Educational Research Association

Association for Educational Data Systems

National Society for Programmed Instruction

Publications: (selected sample)

With J. D. Krumboltz and R. E. Christal, "Predicting Leadership Ratings from High School Activities Using an Interative Multiple Regression Technique," Journal of Educational Psychology, 1959.

"Multiple Linear Regression Models," Computer Applications in the Behavioral Sciences, 1962.

With Kathleen Davis, Teaching a Digital Computer to Assist in Making Decisions, Lackland Air Force Base, Texas, 1963.

With Marion Hook, "Application of an Hierarchial Grouping Procedure to a Problem of Grouping Profiles," Educational Psychological Measurement, 1963.

"The Partitioning of Variance and Contribution or Importance of a Variable: A Visit to a Graduate Seminar," American Educational Research Journal, 1969.

VITA FORM

NAME: George M. Higginson

Professional address/telephone: Southwest Educational Development Laboratory; 800 Brazos; Austin, Texas 476-6861

Home address/telephone: 5403 Shoal Creek Boulevard; Austin, Texas 451-1603

Personal Data:

Birthdate: June 27, 1917

Marital status: married Number of children: four

Educational Experience:

School/degree/year: U.S. Military Academy B.S. 1939

George Washington University M.B.A. 1966

Industrial College of the Armed Forces 1955

Professional Experience:

Present position: Director, Division of Context Analysis, Planning, & Reporting

Previous experience: 1969-1970 - Chief, Long Range Planning and Systems Analysis Branch, SEDL

1968-1969 - Chief, Prototype Program Installation System Development Branch, SEDL

1967-1968 - Coordinator, Technology Program, SEDL

1965-1966 - Student, George Washington University

1962-1965 - Director of European - based Communications Systems, USAF

1961-1962 - Director of Planning, National Security Agency

1958-1961 - Director of Operations, world-wide communications security organization, USAF

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Society of Technical Writers and Publishers

Air Force Association

Publications:

With Carl Swanson and Reeve Love, CALIPERS: Planning the Systems Approach to Field Testing Educational Products, Austin, Texas, 1969

With Reeve Love, "The Role of Media in Field Testing, or, Whatever Happened to the Simple Life?," Audiovisual Instruction, 1970

With Joe H. Ward and Reeve Love, The Educational Catalyst: An Imperative for Today, Austin, Texas, 1970 (to be published by Phi Delta Kappa as Occasional Paper.)

VITA FORM

NAME: Dell Felder

Professional address/telephone: Southwest Educational Development Laboratory;
800 Brazos; Austin, Texas 476-6861

Home address/telephone: 2450 McCue, Apt. 47 NA 2-2787
Houston, Texas

Personal Data:

Birthdate: March 27, 1932

Marital status: Single Number of children:

Educational Experience:

School/degree/year: University of Texas at Austin B.S. 1957
University of Texas at Austin M.S. 1959
University of Texas at Austin Ph.D. 1963

Professional Experience:

Present position: Consultant to Multicultural Social Education staff

Previous experience: Associate Professor in Social Studies Education
Program at the University of Houston

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Publications: (selected sample)

The Challenge of American Democracy, Allyn and Bacon, 1970

"Independent Study Practices in American Colleges and Universities," Journal of Higher Education, 1964

"FTA: Quest for Quality Teachers," Texas Journal of Secondary Education, 1964

With W. O. Nesbitt, "Snyder, Texas Redeploys Students to Improve Staffing Utilization," Bulletin of the National Council of Secondary School Principals

VITA FORM

NAME: Martha P. Cotera

Professional address/telephone: Southwest Educational Development Laboratory; 800 Brazos; Austin, Texas 476-8504

Home address/telephone: 1120B Gillespie Place; Austin, Texas 444-7388

Personal Data:

Birthdate: January 17, 1938

Marital status: married Number of children: one

Educational Experience:

School/degree/year: University of Texas at El Paso B.A. 1962

Professional Experience:

Present position: Librarian/Information Specialist

Previous experience: Head/U.S. Documents Section - Texas State Library - 1964 - 1968

Senior Library Assistant/Archives Division - University of Texas at Austin - 1963-1964

English Instructor, Library Consultant - Loretta Academy for Girls in El Paso - 1962-1963

Senior Library Assistant - El Paso Public Library - 1957-1962

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Texas Library Association

Publications:

VITA FORM

NAME: Juan R. Lujan

Professional address/telephone: Southwest Educational Development Laboratory; 800 Brazos; Austin, Texas 476-6861

Home address/telephone: 8210 Sandalwood Cove; Austin, Texas 465-1623

Personal Data:

Birthdate: May 16, 1922

Marital status: married Number of children: four

Educational Experience:

School/degree/year: University of Texas at Austin B.A. 1945

University of Texas at Austin M.Ed. 1956

Professional Experience:

Present position: Director, Language Development/Reading (ESL, Bilingual) Program

Previous experience: Coordinator, Migrant Programs - Southwest Educational Development Laboratory - 1968-1970

Executive Director - Community Action Agency in Hidalgo County, Texas - 1965-1968

Vocational Rehabilitation Counselor - Texas Education Agency - 1962-1965

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(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Phi Delta Kappa

Day Care and Child Development Council of America

Publications:

VITA FORM

NAME: Martha Smith

Professional address/telephone: Southwest Educational Development Laboratory, 800 Brazos; Austin, Texas 476-6861

Home address/telephone: 6605 Highpoint Drive; Austin, Texas 926-6098

Personal Data:

Birthdate:

Marital status: Married Number of children: None

Educational Experience:

School/degree/year: Mary Hardin-Baylor College B.A.

Texas College of Arts and Industries M.A.

Professional Experience:

Present position: Program Director/Multicultural Social Education

Previous experience: Teacher in various public schools in Texas

Chief Consultant in Instructional Media - Texas Education Agency

Coordinator, Title III Project - Texas Christian University

Assistant Director for Instruction and Staff Development, Education Service Center Region XI - ~~Fort~~ Worth, Texas

Program Planning Staff, Southwest Educational Development Laboratory

(If additional space is necessary, please attach second sheet.)

VITA FORM / Page two

Membership in professional societies/associations:

Texas State Teachers Association

National Education Association

National Council of Teachers of English

Modern Language Association

Association of Supervision and Curriculum Development

Publications:

Articles in Texas Outlook, Educational Resources and Techniques, Texas School Business, etc.

Following are the vitae on all persons at the Texas Education Agency who have been or will be involved in the training project:

. Harlan Ford

. Irene St. Clair

. Al Little

. Walter Howard

. Charles Nix

. Keith Cruse

. Juan Solis

VITA FORM

NAME: L. Harlan Ford

Professional address/telephone: Texas Education Agency, 11th & Brazos
Austin, Texas 78701 - 475-3723

Home address/telephone: 801 Country Club Rd., Georgetown, Texas 78626

Personal Data:

Birthdate: March 27

Marital status: Married Number of children: Two Sons

Educational Experience:

School/degree/year: BS Southwest Texas State University

MA Southwest Texas State University

Ed.D Colorado State - Post graduate study, University of Edmonton, Alberta, Canada and Sul Ross State University

Professional Experience:

Present position: Assistant Commissioner for Teacher Education and Instructional Services, Texas Education Agency

Previous experience: Executive Director, Region XIX, El Paso, Texas Education Service Center
Dean and Interim President, Sul Ross State University Alpine, Texas -
Related Experiences - Doctoral Student and Consultant, Colorado State, Boulder, Colorado, Lecturships in Canada, Colorado, Japan and Mexico

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Texas State Teachers Association, National Education Association, National Association for Doctors of the U. S., Phi Delta Kappa, Kappa Delta Pi, Phi Alpha Theta, International Platform Assn., 32nd Degree Mason, Boy Scouts of America, Lions Club

Publications:

Numerous

VITA FORM

NAME: Irene St. Clair

Professional address/telephone: Texas Education Agency, Austin 78701
475-3654

Home address/telephone: 2503 Briargrove Drive, Austin 78704
442-2549

Personal Data:

Birthdate: 2-17-10

Marital status: married Number of children: two

Educational Experience:

School/degree/year: University of Texas BA 1930
University of Texas MA 1934
University of Texas Ph D 1967

Professional Experience:

Present position: Coordinator for Program Development, Texas Education Agency

Previous experience: Teaching Mathematics: Austin High School, Austin
Special Junior High Program for Academically Talented, Austin
Public Evening School, Austin
Television Teacher, Mathematics
Narrator for Series of Tapes - In-Service Education for teachers

Other: Participant in NSF Institutes, Summer and AYI
Writing Team member, School Mathematics Study Group, Stanford, Cal.
Coordinator statewide in-service education, 1962-66
Two Media Invitational Conferences
CUPM Conferences
Three USOE Invitational Conferences

(If additional space is necessary, please attach second sheet)

Coordinated two transparency projects
TF Assignments including Information System
Projects with other State Departments

VITA FORM / Page two

Membership in professional societies/associations:

National Council Teachers of Mathematics, Texas Council Teachers of Mathematics, Austin Area Council Teachers of Mathematics (currently president), Association of State Supervisors of Mathematics (past president), Association of Teachers of Mathematics of New York, Mathematical Association of America, Central Association of Science and Mathematics Teachers, Texas Association of Supervisors of Mathematics, Association for Supervision and Curriculum Development, Texas Association for Supervision and Curriculum Development, Texas State Teachers Association, NEA, Delta Kappa Gamma

Publications:

Contributions to: Educational Leadership
The Arithmetic Teacher
Texaved
Texas Outlook
TCTM Newsletter

Member of writing group for two NCTM In-Service Education publications, one SMSG publication, and one SMSG Newsletter

Coordinator of three bulletins on mathematics published by Texas Education Agency, and author of numerous articles for distribution to Texas school administrators and counselors.

VITA FORM

NAME: Alfred T. Little

Professional address/telephone: 201 East 11th Street, Austin, Texas 78701

475-3239

Home address/telephone: 4305 Duval, Apt. 202, Austin, Texas 78751

454-6984

Personal Data:

Birthdate: October 23, 1913

Marital status: Married Number of children: one

Educational Experience:

School/degree/year: East Texas State University - B.S. - 1937

East Texas State University - M.S. - 1946

University of Texas - Ed.D. - 1955

Professional Experience:

Present position: Director, Educational Personnel Development - Texas

Education Agency, Austin, Texas

Previous experience: Superintendent of Jefferson Parish Public Schools -

Gretna, Louisiana - 1965-69

Superintendent of Borger Public Schools - Borger, Texas

1955-65

Assistant Superintendent Midland Public Schools -

Midland, Texas - 1954-55

Staff Member and Graduate Student - University of

Texas - Austin, Texas - 1952-54

VITA FORM/Continuation
Previous experience

Superintendent of Emory Public Schools - Emory, Texas - 1948-52

U. S. Navy - Enlisted and Officer - 1942-45

Superintendent of Ben Wheeler Public Schools - Ben Wheeler, Texas - 1940-42

Principal of Ben Wheeler Public Schools - Ben Wheeler, Texas - 1937-40

Teacher, Century School - Greenville, Texas - 1936-37

VITA FORM / Page two

Membership in professional societies/associations:

Phi Delta Kappa

NEA

TASA

TSTA

Publications:

VITA FORM

NAME: Walter R. Howard

Professional address/telephone: Texas Education Agency, 11th & Brazos, Austin, Texas (512) 475-2066

Home address/telephone: 6811 De Paul Cove, Austin, Texas 78723 (512) 926-7296

Personal Data:

Birthdate: August 28, 1931

Marital status: Married Number of children: 2

Educational Experience:

School/degree/year: University of Texas, B.A., 1951
University of Texas, M.Ed., 1958

Professional Experience:

Present position: Director, Division of Assessment and Evaluation

Previous experience: Assistant to the Principal 1960-67
Classroom Teacher 1955-60

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Phi Delta Kappa

Texas State Teachers Association

Publications:

VITA FORM

NAME: Charles W. Nix

Professional address/telephone: Texas Education Agency, 201 East 11th Street, Austin, Texas 512/475-2066

Home address/telephone: 304 East 33rd Street, Austin, Texas 512/478-4328

Personal Data:

Birthdate: August 8, 1931

Marital status: Married Number of children: None

Educational Experience:

School/degree/year: University of Texas at Austin, Master of Ed. 1961.
Sam Houston State College, Bachelor of Music Education, 1953.

Professional Experience:

Present position: Associate Commissioner for Planning, July 1967 to present.

Previous experience: June 1967 - Sept. 1966, Division of Assessment and Evaluation, Office of Planning.
August 1966 - November 1965, Director of Evaluation, Division of Compensatory Education.
May 1964 - Sept. 1963, Field Consultant, Edinburg, Division of Guidance Services.
August 1963 - July 1961, Assistant Principal, Edinburg High School, Edinburg, Texas.
May 1960 - February 1959, Music Teacher, Elem. and Secondary Schools, Del Valle, Texas.
August 1957 - July 1953, U. S. Army.

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Texas State Teachers Association

National Education Association

Publications:

VITA FORM

NAME: Keith L. Cruse

Professional address/telephone: Texas Education Agency, 201 E. 11th, Austin, Texas 475-4448

Home address/telephone: 6902 Geneva Drive, Austin, Texas 78723 926-3637

Personal Data:

Birthdate: October 25, 1938

Marital status: Married Number of children: 3

Educational Experience:

School/degree/year:

Trinity University	MS	1964
Trinity University	BA	1960
University of Texas at Austin - Graduate studies toward Phd.		

Professional Experience:

Present position: Program Director, Assessment

Previous experience:

Program Director, Innovations - Texas Education Agency

Consultant, Mathematics, Texas Education Agency

Instructor, San Antonio College

Department Chairman, Mac Arthur High School

Teacher, Junior High School

Group Underwriter, American Hospital & Life Insurance Co.

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Texas State Teachers Association

Association for Supervision and Curriculum Development

Publications:

The Evolution of Planning in the Texas Education Agency - 1970 for the project Improving State Leadership in Education, Denver, Colorado

VITA FORM

NAME: Juan D. Solís

Professional address/telephone: VFW Bldg, Room 504, 475-3651
(Capitol Station, 78701)

Home address/telephone: 1609 AShberry Drive, 78723
454-6327

Personal Data:

Birthdate: March 8, 1921

Marital status: Married Number of children: 9

Educational Experience:

School/degree/year: Edinburg Jr. Coll./A.A./May 1949
Texas A&I/None/NA
Pan American/B.A./August 1953
Southwest Texas/M.A./August 1956
University of California/None/NA

Professional Experience:

Present position: State Program Director, Texas Education Agency

Previous experience: McAllen ISD, Teacher
Monterey City School District, Teacher
Texas Education Agency, Consultant

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Phi Delta Kappa Fraternity

TSTA

Knights of Colombus

Parent-Teacher Association

Publications:

None

Following are the vitae on all persons at the University of Texas College of Education who have been or will be involved in the training project:

. Jackson B. Reid

. Wayne H. Holtzman

. E. Wailand Bessent

. Jean York

. Jack M. Knutson

VITA FORM

NAME: Jackson B. Reid

Professional address/telephone: College of Education; University of Texas; Austin, Texas 471-7255

Home address/telephone: 3619 Westlake Drive; Austin, Texas 327-1100

Personal Data:

Birthdate: September 18, 1921

Marital status: married Number of children: two

Educational Experience:

School/degree/year: The Citadel (South Carolina) B.S. 1942

University of California at Los Angeles Ph.D. 1951

Professional Experience:

Present position: Associate Dean of Graduate Studies/College of Education

Previous experience: Assistant Professor, Department of Educational Psychology - University of Texas at Austin - 1951-1955

Associate Professor, Department of Educational Psychology - University of Texas at Austin - 1955-1959

Professor, Department of Educational Psychology - University of Texas at Austin - 1959-Present

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Sigma Xi, Phi Delta Kappa, Psi Chi

American Psychological Association

Texas Psychological Association

Southwestern Psychological Association

Interamerican Society of Psychology

American Association for the Advancement of Science

American Association of University Professors

Publications: (representative sample)

"Machine and Learner Interaction in Programmed and Computer-Assisted Instruction," Revista Interamericana de Psicologia, 1968

With E. Sutter, "Learner Variables and Interpersonal Conditions in Computer-Assisted Instruction," Journal of Educational Psychology, 1969

With F. J. King and P. Wickwire, Cognitive and other personality characteristics of creative children. Psychological Reports, 1959

With J. Pierce-Jones and F. J. King, Adolescent racial and ethnic group differences in social attitudes and aspects of adjustment. Psychological Reports, 1959

With S. J. Kaplan and W. H. Melching, A Method of Analysis of Gross Behavior, 1955

VITA FORM

NAME: Wayne H. Holtzman

Professional address/telephone: Hogg Foundation for Mental Health; University of Texas; Austin, Texas 471-5041

Home address/telephone: 3300 Foothill Drive; Austin, Texas 452-8296

Personal Data:

Birthdate: January 16, 1923

Marital status: married Number of children: four

Educational Experience:

School/degree/year:			
	Northwestern University	B.S.	1944
	Northwestern University	M.S.	1947
	Stanford University	Ph.D.	1950

Professional Experience:

Present position: President/Hogg Foundation for Mental Health

Previous experience: Assistant Professor, Department of Psychology - University of Texas at Austin - 1949-1953

Associate Professor, Department of Psychology - University of Texas at Austin - 1953-1959

Professor, Department of Psychology - University of Texas at Austin - 1959-Present

Director, Social Science Research Council - 1957-1963

(If additional space is necessary, please attach second sheet)

Professional Experience (continued):

Dean, College of Education - University of
Texas at Austin - 1964-Present

VITA FORM / Page two

Membership in professional societies/associations:

Southwestern Psychological Association; Interamerican Society of Psychology; American Psychological Association; Texas Psychological Association; American Statistical Association; American Educational Research Association; American Association of University Professors; American Association for the Advancement of Science; National Research Council: Sigma Xi

Publications: (representative sample)

Adjustment and leadership: A study of the Rorschach test. J. Soc. Psychol., 1952

Adjustment and the discrepancy between self concept and inferred self. J. Consult. Psychol., 1953

New evidence for the validity of Taylor's Manifest Anxiety Scale. J. Abn. and Soc. Psychol., 1952, (with A.D. Calvin and M.E. Bitterman)

Conditioning and extinction of the galvanic skin response as a function of anxiety. J. Abn. Soc. Psycho., 1952, (with M.E. Bitterman)

The unbiased estimate of the population variance and standard deviation. Amer. J. Psychol., 1950

The examiner as a variable in the Draw-A-Person Test. J. Consult. Psychol., 1950

VITA FORM

NAME: E. W. Bessent

Professional address/telephone: Education Annex F38E; University of Texas; Austin, Texas 471-7551

Home address/telephone: 4603 Edgemost Drive; Austin, Texas 452-9010

Personal Data:

Birthdate: January 18, 1925

Marital status: married Number of children: three

Educational Experience:

School/degree/year:

University of Texas at Austin	B.A.	1950
University of Texas at Austin	M.Ed.	1956
University of Texas at Austin	Ph.D.	1961

Professional Experience:

Present position: Professor and Graduate Advisor/Educational Administration

Previous experience: Teacher - Corpus Christi, Pecos - 1951-1954

Principal,- Pecos Independent School District - 1954-1957

Director of Research - San Angelo ISD - 1957-1959

Research Associate - University of Texas at Austin - 1959-1961

Associate Professor - University of Arizona - 1941-1965

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

American Educational Research Association

American Association of School Administrators

National Education Association

UCEA

NCPEA

Publications:

numerous publications in journals; monographs; books and chapters of books

VITA FORM

NAME: L. Jean York

Professional address/telephone: Sutton Hall 432, The University of Texas at Austin, Austin, Texas 78712. Phone GR1-1801

Home address/telephone: 6112 Mountainclimb Drive, Austin, Texas 78731 Phone 452-1423

Personal Data:

Birthdate: December 25, 1922

Marital status: Married Number of children: -

Educational Experience:

School/degree/year: Kalamazoo College, B.A. Sociology, 1944

Wayne State University, M.Ed., Elem. Admin., 1957

Indiana University, Ed.D., Elem. Ed., 1967

Professional Experience:

Present position: Associate Professor of Curriculum and Instruction, U.T.

Previous experience: Elementary Teacher, McCann School, Southgate, Michigan

Elementary Principal, Hunter School, Southgate, Michigan

Elementary Principal, Chormann School, Southgate, Mich.

Director & Supvsr., Bartholomew Cons. Sch. Corp., Columbus, Indiana

Visiting Lecturer, Indiana University, Bloomington, Ind.

Educational Consultant, Ginn and Company

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Association for Supervision and Curriculum Development

Association for Student Teaching

International Reading Association

American Educational Research Association

National Science Teachers Association

National Council of Teachers of English

National Education Association

American Association of University Professors

Publications: (representative sample)

"Teachers Need Individual Attention, Too!", Science Activities, 1970

"The Changing Curriculum in Elementary Science," Supervisors Quarterly, 1969-1970

With Maurice Kellogg and James Weigand, "Primary School Science Education," The Hoosier Schoolmaster of the Sixties, 1966

Atomic Model, Introductory Level A, Introductory Level B, Introductory Level C, Boston, Mass., 1969

Animal Behavior, Books One, Two, Three and Five, Boston, Mass., 1969

The Higher Animal, Book One, Two, Three, Four, Five, Six, Seven, and Eight, Boston, Mass., 1969

VITA FORM

NAME: Jack M. Knutson

Professional address/telephone: Department of Educational Psychology;
Sutton Hall 114; University of Texas; Austin, Texas 471-7255

Home address/telephone:

Personal Data:

Birthdate: August 19, 1932

Marital status: married Number of children: three

Educational Experience:

School/degree/year: Harvard University B.A. 1954
Stanford University Ph.D. 1967

Professional Experience:

Present position: Associate Professor/Department of Educational Psychology

Previous experience:

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

American Psychological Association

American Educational Research Association

Publications: (representative)

"Spelling Drills Using a Computer-Assisted Instructional System," Technical Report No. 112/Institute for Mathematical Studies in the Social Sciences, Stanford, California

Following are the vitae on all persons at the Research and Development Center for Teacher Education who have been or will be involved in the training project:

. Oliver H. Bown

. Robert F. Peck

. Shirley L. Menaker

. Donald J. Veldman

VITA FORM

NAME: Oliver H. Bown

Professional address/telephone: Research and Development Center for Teacher Education; University of Texas; Austin, Texas 471-1343

Home address/telephone: 4504 Erin Lane; Austin, Texas 454-0295

Personal Data:

Birthdate: August 6, 1921

Marital status: married Number of children: four

Educational Experience:

School/degree/year:			
	University of Denver	A.B.	1943
	University of Chicago	M.A.	1948
	University of Chicago	Ph.D.	1954

Professional Experience:

Present position: Co-Director/Research and Development Center for Teacher Education

Previous experience:

Professional Services Coordinator, Counseling Center - University of Chicago - 1949-1951

Assistant Director, Testing and Counseling Center - University of Texas at Austin - 1951-1958

Associate Professor, Department of Educational Psychology - University of Texas at Austin - 1959-1966

(If additional space is necessary, please attach second sheet)

Professional Experience (continued):

Associate Director, Research and Development
Center for Teacher Education - University of
Texas at Austin - 1965-1968

Professor, Department of Educational Psychology -
University of Texas at Austin - 1966-Present

VITA FORM / Page two

Membership in professional societies/associations:

American Psychological Association

Southwestern Psychological Association

Texas Psychological Association

Medical-Professional Advisory and Evaluation Board, United Cerebral Palsy of Texas, Incorporated

Phi Beta Kappa, Omicron Delta Kappa

Publications: (representative sample)

With E. M. Sanders and R. B. Mefford, "Verbal and Quantitative Ability and Certain Personality and Metabolic Characteristics of Male College Students," Educational and Psychological Measurement, 1960.

"The Impact of the Mental Health in Teacher Education Project at the University of Texas," Sixteenth Yearbook of the American Association of Colleges for Teacher Education, 1963.

With Frances Fuller and Robert Peck, Creating Climates for Growth, Austin, 1966.

With H. G. Richek, "The Bown Self-Report Inventory (SRI): A Quick Screening Instrument for Mental Health Professionals," Comprehensive Psychiatry, 1967.

With H. G. Richek, "Phenomenological Correlates of Jung's Typology," The Journal of Analytical Psychology, 1968.

With H. G. Richek, "Teachers-to-Be: Extraversion/Introversion and Self-Perceptions," The Elementary School Journal, 1969.

VITA FORM

NAME: Robert F. Peck

Professional address/telephone: Research and Development Center for Teacher Education; University of Texas; Austin, Texas 471-1343

Home address/telephone: 3304 Glen Rose Drive; Austin, Texas 452-5882

Personal Data:

Birthdate: September 22, 1919

Marital status: married Number of children: two

Educational Experience:

School/degree/year: New York State University College at Buffalo B.Sc. 1941

New York State University College at Albany M.Sc. 1942

University of Chicago Ph.D. 1951

Professional Experience:

Present position: Co-Director/Research and Development Center for Teacher Education

Previous experience: Instructor to Research Associate, Committee on Human Development - University of Chicago - 1946-1954

Associate Professor, Department of Educational Psychology - University of Texas at Austin - 1954-1959

Professor, Department of Educational Psychology - University of Texas at Austin - 1959-Present

(If additional space is necessary, please attach second sheet)

Professional Experience (continued):

Director, Personality Research Center -
University of Texas at Austin - 1962-Present

VITA FORM / Page two

Membership in professional societies/associations:

American Psychological Association

Interamerican Society of Psychology

Texas Psychological Association

Society for Research in Child Development

Sigma Xi

Publications: (representative sample)

"Measuring the Mental Health of Normal Adults," Genetic Psychology Monographs," 1959

With Robert J. Havighurst et al., The Psychology of Character Development, New York, 1960

"A Comparison of the Value Systems of Mexican and American Youth," Interamerican Journal of Psychology, 1967.

With Frances Fuller and Oliver Bown, Creating Climates for Growth, Austin, 1966

With D. J. Veldman, "Influences on Pupil Evaluations of Student Teachers," Journal of Educational Psychology, 1969

With D. J. Veldman and S. L. Menaker, "Computers in Behavioral Science: Computer Scoring of Sentence Completion Data," Behavioral Science, 1969

VITA FORM

NAME: Shirley L. Menaker

Professional address/telephone: Department of Educational Psychology; University of Texas; Austin, Texas 475-1343

Home address/telephone: 3302 Cherry Tree Circle; Austin, Texas 452-2635

Personal Data:

Birthdate: July 22, 1935

Marital status: married Number of children: two

Educational Experience:

School/degree/year:

Swarthmore College	B.A.	1956
Boston University	M.A.	1961
Boston University	Ph.D.	1965

Professional Experience:

Present position: Assistant Professor; Director of Psychological Assessment Division, R & D Center for Teacher Education

Previous experience:

Pre-doctoral Research Fellow - University of Texas at Austin - 1963-1964

Research Associate, Computer Analysis of Personality Project - University of Texas at Austin - 1964-1967

Psychological Consultant - R & D Center for Teacher Education - 1965-1967

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

American Psychological Association

American Educational Research Association

Publications:

With D. J. Veldman, "Computer Applications in Assessment and Counseling," Journal of School Psychology, 1968

With D. J. Veldman, "Computer Scoring of Sentence Completion Data," Behavioral Science, 1969

VITA FORM

NAME: Donald John Veldman

Professional address/telephone: Research & Development Center for Teacher Education, University of Texas Austin, Texas telephone: 471-1343

Home address/telephone: 2038 Northridge Drive, Austin, Texas 78723

Personal Data:

Birthdate: December 24, 1931

Marital status: Married Number of children: 4

Educational Experience:

School/degree/year: B.A., Hope College, English, June 1953
Ph.D., University of Texas at Austin, Psychology, August 1960

Professional Experience:

Present position: Professor, Department of Educational Psychology, September 1969

Previous experience: Research Associate, Mental Health in Teacher Education (MHTE) project, June 1959 - August 1964
Instructor, Department of Psychology, Summer 1960
Assistant Professor, Department of Educational Psychology September 1961 - August 1964
Co-Director, Computer Analysis of Personality (CAP) project, September 1962 - August 1967
Associate Professor, Department of Educational Psychology September 1964 - August 1969

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

American Psychological Association (Divisions 5 and 15)

American Educational Research Association

Association for Computing Machinery

Psychometric Society

National Council on Measurement in Education

Texas Psychological Association

Publications:

With R.K. Young, Introductory Statistics for the Behavioral Sciences. 1965

Fortran Programing for the Behavioral Sciences, 1967

Following is the vita for the person at the Educational Development Corporation who has been and will be involved in the training project:

. Dorothy A. Fruchter

VITA FORM

NAME: Dorothy A. Fruchter

Professional address/telephone: 2813 Rio Grande

Austin, Texas telephone: 476-5419

Home address/telephone: 2704 Valley Springs

telephone: 327-0764

Personal Data:

Birthdate: March 26, 1920

Marital status: Married Number of children: 3

Educational Experience:

School/degree/year: B.A. University of California, Berkeley, 1941

M.A. (psychology) University of Texas, Austin, 1953

Ph.D. (educational psychology), University of Texas, Austin, 1970

Professional Experience:

Present position: President and Research Scientist, Educational Development Corp., Austin, Texas

Previous experience: President and Research Scientist, Psychological Research Service, Inc. from 1956 to June 1970.

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Psi Chi

Pi Lambda Theta

American Psychological Association

Southwestern Psychological Association

Texas Psychological Association

Publications:

"Home Completion of Renewal Tests for Drivers"

"The Construction, Review, and Administration of Air Force Job Inventories"

"Development of a Counseling Form for use by Supervising Officers"

"Effects of Speed and Difficulty Level on the Factorial Content of Spatial Tests"

Following is the vita on the person from the Education Service Center, Region XIII, who has been and will be involved in the training project:

. Milton L. Smith

VITA FORM

NAME: Milton Lloyd Smith

Professional address/telephone: Education Service Center, 6504 Tracor Lane

Telephone: (512) 454-0382

Home address/telephone: 6605 Highpoint Drive, Austin, Texas

Telephone: (512) 926-6098

Personal Data:

Birthdate: May 2, 1927

Marital status: Married Number of children: None

Educational Experience:

School/degree/year: B.S. degree, University of Corpus Christi, 1950

M.S. degree, Texas A&I University, 1957

Ph.D. degree, The University of Texas at Austin, 1964

Professional Experience:

Present position: Coordinator for Educational Personnel Development

Previous experience: Elementary principal, music teacher , and high school choral music director in Sinton I.S.D., Sinton, Texas 1950-1953

Dean of the College at Paris Junior College, Paris, Texas 1964-1967

Dean of Instruction of the South Campus, Tarrant County Junior College District, Fort Worth, Texas 1967-1969

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Publications:

"The Development and Application of a Method for Analyzing Formal and Informal Organizational Structures." The University of Texas at Austin, August, 1964.

"Study of Training, Experience, and Inservice Needs of Coordinated "Vocational-Academic Education Teachers in Texas." January, 1970

Following are the vitae on all persons at the Austin Independent School District who have been and will be involved in the training project:

- Marshel Ashley
- Ronald Beauford

VITA FORM

NAME: Marshel Ashley

Professional address/telephone: Austin Independent School District; 6100 Guadalupe; Austin, Texas

Home address/telephone: Elroy; 247-2342

Personal Data:

Birthdate: September 1, 1914

Marital status: married Number of children: two

Educational Experience:

School/degree/year: University of Texas at Austin B.A. 1937

University of Texas at Austin M.A. 1942

Professional Experience:

Present position: Director/Research and Development

Previous experience: Superintendent - Lexington (Texas) Independent School District - 1946-1951

Teacher of Social Studies, Stephen Austin High - Austin, Texas - 1951-1953

Assistant Principal, O. Henry Jr. High - Austin, Texas - 1953-1956

Principal, University Jr. High - Austin, Texas - 1956-1965

(If additional space is necessary, please attach second sheet)

Professional Experience:(continued):

Assistant Director, Gary Job Corps Training
Center - San Marcos, Texas - 1965-1966

Superintendent - Del Valle (Texas) Independent
School District - 1966-1968

VITA FORM / Page two

Membership in professional societies/associations:

Masonic Lodge

Publications:

"Extended Educational Opportunities"

"The Student Who Left School"

"Education for All the Children of ALL the People"

"A School Moves Out to Keep Students In"

"Human Relations Since Integration"

VITA FORM

NAME: Ronald D. Beauford

Professional address/telephone: 3700 North Hills Drive

Austin, Texas 78731 telephone: 345-0670

Home address/telephone: 1401 Briarcliff Blvd.

Austin, Texas 78723 GI-2-3281

Personal Data:

Birthdate: July 29, 1934

Marital status: Married Number of children: 1

Educational Experience:

School/degree/year: Southwest Texas University B.S. 1957

Southwest Texas University M.A. 1960

Southwest Texas University M. Ed. 1965

Professional Experience:

Present position: Vice-Principal E.A. Murchison Jr. High School

Previous experience: Aide to Major General U.S. Air Force

Commander Air Transportation U.S.A.F.

Education Office U.S.A.F.

Biology instructor S.F. Austin School (8 years)

Dean of Men S.F. Austin High School (2 years)

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Alpha Chi

Kappa Delta Phi

Austin Secondary Principals' Association

Austin Administrators' Association

Texas State Teachers Association

United States Air Force Reserve

Publications:

"The Computer's Relationship to School Administration," The Messenger AISD, April, 1970

"Data Processing Techniques," Austin Classroom Teacher Association, 1963

"Why Not Computerize the Library?," unpublished paper.

Following are the vitae on all persons from the Louisiana State University College of Education who have been or will be involved in the training project:

- Fred Smith
- Sam Adams
- Robert C. Von Brock

VITA FORM

NAME: Fred M. Smith

Professional address/telephone: College of Education, Louisiana State University, Baton Rouge, Louisiana 70803 Telephone: 504--388-3336

Home address/telephone: 11625 Highland Road, Baton Rouge, Louisiana 70810 Telephone: 766-2297

Personal Data:

Birthdate: October 10, 1928

Marital status: Married Number of children: Three

Educational Experience:

School/degree/year: Louisiana State University - B.S. - 1952
University of Michigan - M.A. - 1960
Louisiana State University - Ed.D.- 1962

Professional Experience:

Present position: Director of Bureau of Educational Research and Associate

Previous experience: Professor of Education at Louisiana State University.
Social Studies Teacher and Counselor at Kinder High School
Counselor in Junior Division at Louisiana State University

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Dr. Smith

Membership in professional societies/associations:

Louisiana Teachers Association, American Educational Research Association, and National Council on Measurement in Education (Board of Directors member and currently Editor of Measurement News)

Publications:

Co-author, Educational Measurement for the Classroom Teacher. Also a number of articles for Louisiana Schools, The Boardman, and Journal of Educational Measurement. Presented a research paper at the 1968 annual meeting of the National Council on Measurement in Education entitled "The Effect of Certain Common Distractions On The Test Performance of Elementary Students."

VITA FORM

NAME: Sam Adams

Professional address/telephone: College of Education, Louisiana State University, Baton Rouge, Louisiana 70803 Telephone: 504--388-2331

Home address/telephone: 2010 Glendale Avenue, Baton Rouge, Louisiana 70808 Telephone: 504--348-4120

Personal Data:

Birthdate: March 14, 1916

Marital status: Married Number of children: One

Educational Experience:

School/degree/year: Delta State Teachers College - B.S. - 1936

Louisiana State University - M.A. - 1940

Louisiana State University - Ph.D.- 1951

Professional Experience:

Present position: Associate Dean and professor of education at L.S.U.

Previous experience: Science teacher, Mississippi public schools; Physics teacher, Ramsay Technical High School, Birmingham, Ala.; Industrial chemist, steel mill, Birmingham, Ala.; Extension instructor in physics, University of Alabama; District supervisor of extension, University of Alabama; Civilian instructor in radio, Scott Field, Illinois; Civilian instructor in radio, Sioux Falls AFB; Chief radioman, U. S. Maritime Service, Boston, Mass.;

(If additional space is necessary, please attach second sheet)

Previous Experience
Dr. Sam Adams
Page 2

Foreman in electronics, Tennessee Eastman Corp., Oak Ridge
Radio propagation engineer, enlisted status, Army Signal Corps
Research physicist, Union Carbide, Oak Ridge
Associate professor of physics, McNeese State College
Assistant principal and science supervisor, Laboratory School, L.S.U.
Associate professor of education, Louisiana State University
Professor of education and Associate Dean of Academic Affairs, L.S.U.
Acting Dean of Academic Affairs, Baton Rouge campus, L.S.U.

VITA FORM / Page two Dr. Adams

Membership in professional societies/associations:

Phi Delta Kappa, Phi Kappa Phi, Omicron Delta Kappa, National Education Association, Louisiana Teachers Association, National Science Teachers Association, National Council of Teachers of Mathematics, American Educational Research Association, and National Council for Measurement in Education

Publications:

Author or co-author of following books: Science in Our Environment, Science in Our World, Science in the Universe, Developing Arithmetic Concepts and Skills, Educational Measurement for the Classroom Teacher, To Be a Teacher, and Music: Imaginative Listening

Author or co-author of about 90 articles, short stories, etc.

Educational collaborator, Coronet Instructional Films

Consultant, Southwest Educational Development Corp. and many school systems

VITA FORM

NAME: Robert C. Von Brock

Professional address/telephone: College of Education, Louisiana State University, Baton Rouge, Louisiana 70803 Telephone: 504--388-2002

Home address/telephone: 435 Castle Kirk Drive, Baton Rouge, Louisiana 70808 Telephone: 504--766-1821

Personal Data:

Birthdate: June 28, 1926

Marital status: Married Number of children: Four

Educational Experience:

School/degree/year: Northwestern University (Illinois) - B.S. - 1951
Northwestern University (Illinois) - M.A. - 1952
Northwestern University (Illinois) - Ph.D.-1962

Professional Experience:

Present position: Professor of Education, Louisiana State University

Previous experience: Teacher, Junior High School Science and Mathematics, Highland Park, Illinois; Principal, Duane Street School, Glen Ellyn, Illinois; Principal, Main Street School, Glen Ellyn, Illinois; Director of Guidance and Counseling, Glen Ellyn, Illinois; Chairman, School Problems Study Group, Glen Ellyn, Illinois; Member, School Survey Team, Northwestern University, Evanston, Illinois; Associate Professor of Education, Louisiana State University.

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two Dr. Von Brock

Membership in professional societies/associations:

Member, University Student Aid and Scholarship Committee (Chairman two years)

Member, College of Education Admission and Rentention Committee

Member, University Graduate Committee; Member, Executive Committee, University Faculty Forum; Faculty Advisor, Gamma Beta Phi Society (Currently, National Vice-President)

Chairman, University Junior Division Council; Member, L.S.U. Student Union Governing Board ; Associate Director, Staff Development Project, SEDL.

Publications:

Articles in Illinois Elementary Principal, Louisiana Schools, The Arithmetic Teacher, The Futurist, Louisiana Urban Affairs, and The Boardman.

Co-author of Discipline of Pupils and "The Development of the A-V Scale of Attitudes Toward Mathematics" .

Co-editor of Models for Educational Change - Monograph No. 2. Southwest Educational Development Laboratory.

Following are the vitae on persons who have been involved as consultants in the design phase of the project and who will be involved in the project itself, but who are not members of the consortium:

. Michal Clark, Arizona State University

. David Merrill, Brigham Young University

. Thomas Owens, Center for Planning and Evaluation

. Stephen Schwimmer, Center for Planning and Evaluation

. Richard Gustafson, Center for Planning and Evaluation

. Frederick Long, Center for Planning and Evaluation

. Paul B. Campbell, Pennsylvania Department of Public Instruction

. Joan S. Beers, Pennsylvania Department of Public Instruction

. Robert Hayes, Pennsylvania Department of Public Instruction

VITA FORM

NAME: Michal Charles Clark

Professional address/telephone: Education Building B 148; Arizona State University; Tempe, Arizona (602) 965-6297

Home address/telephone:

Personal Data:

Birthdate: April 30, 1945

Marital status: married Number of children: none

Educational Experience:

School/degree/year: University of California at Los Angeles B.A. 1966

Stanford University Ph.D. 1969

Professional Experience:

Present position: Assistant Professor/Department of Educational Psychology

Previous experience: Assistant Professor, Department of Educational Psychology - University of Texas at Austin

Coordinator, Systems Control and Evaluation - Research and Development Center for Teacher Education

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Publications: (representative sample)

With M. P. Friedman, "Paired-associate Learning in a Simple Adaptive Environment," Psychonomic Science, 1967

"Of Children, Pigeons, and Inhibitions, II," Stanford Review of Education, 1968

With G. H. Bower, "Narrative Stories As Mediators for Serial Learning," Psychonomic Science, 1969

With K. R. Graham, "Psychological Pollution," American Psychologist, 1969

"The Conceptual Framework," 1969 Annual Report of the R & D Center for Teacher Education, 1969

VITA FORM

NAME: M. David Merrill

Professional address/telephone: 320 Arts Building, Lower Campus, Brigham Young University; Provo, Utah (801) 374-1211 ext. 2635

Home address/telephone: 110 South Westwood Drive; Orem, Utah (801) 225-4703

Personal Data:

Birthdate: March 27, 1937

Marital status: married Number of children: five

Educational Experience:

School/degree/year: Brigham Young University B.A. 1961

University of Illinois M.A. 1964

University of Illinois Ph.D. 1964

Professional Experience:

Present position: Director/Department of Instructional Research and Development

Previous experience: Instructor, Educational Psychology - University of Illinois - 1963-1964

Assistant Professor, Educational Psychology - George Peabody College for Teachers - 1964-1966

Assistant Professor, Educational Psychology - Brigham Young University - 1966-1967

Associate Professor, Educational Psychology - Brigham Young University - 1968-1969

(If additional space is necessary, please attach second sheet)

Professional Experience continued:

Professor, Educational Psychology - Brigham Young University - 1969-present

VITA FORM / Page two

Membership in professional societies/associations:

American Educational Research Association

American Psychological Association

Association for the Advancement of Science

Association for the Development of Instructional Systems

National Society for Programed Instruction

Phi Delta Kappa

Phi Kappa Phi

Publications: (selected sample)

"Correction and Review on Successive Parts in Learning a Hierarchical Task," Journal of Educational Psychology. 1965

"Components of a Cybernetic Instructional System," Educational Technology, 1968

"Instructional Design - A New Emphasis in Teacher Training," Educational Horizons, 1968

"Teachers: Technologists or Technicians." Journal of Teacher Education, 1968.

VITA FORM

NAME: Thomas Raymond Owens

Professional address/telephone: Santa Clara County Center for Planning and Evaluation, 1110 N. 10th Street; San Jose, Cal. (408) 299-3731

Home address/telephone: 687 Faye Park Drive; San Jose, Cal. (408) 269-6154

Personal Data:

Birthdate: October 7, 1937

Marital status: married Number of children: two

Educational Experience:

School/degree/year: Fordham University B.S. 1960

Ohio State University M.A. 1964

Ohio State University Ph.D. 1968

Professional Experience:

Present position: Program Director/Evaluation

Previous experience: Ohio State University - Assistant Instructor - 1962-1968

Hawaii Teacher Corps - Instructor - 1963-1969

Hawaii Curriculum Center - Senior Evaluation Specialist - 1968-1970

University of Hawaii - Assistant Professor, Educational Psychology - 1968-1970

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Phi Delta

American Educational Research Association

Association for Supervision and Curriculum Development

National Council on Measurement in Education

American Psychological Association

California Teachers Association

Publications: (selected sample)

With A. L. Roaden, "Predicting Academic Success in Master's Degree Programs in Education," Journal of Educational Research, 1966.

The Roles of Evaluation Specialists in Title I and Title III Elementary and Secondary Education Act Projects, 1968.

"Suggested Tasks and Roles of Evaluation Specialists in Education," Educational Technology, 1968.

With D. L. Stufflebeam, "An Experimental Comparison of Item Sampling and Examinee Sampling for Estimating Test Norms," Journal of Education Measurement, 1969.

VITA FORM

NAME: Stephen Schwimmer

Professional address/telephone: Santa Clara County Center for Planning and Evaluation; 1110 North Tenth Street; San Jose, California (408) 299-3731

Home address/telephone: 5945 Indian Avenue; San Jose, California (408) 225-7175

Personal Data:

Birthdate: April 30, 1943

Marital status: married Number of children:

Educational Experience:

School/degree/year:			
	Syracuse University	A.B.	1964
	Syracuse University	M.A.	1966
	University of Connecticut	M.A.	
	University of Connecticut	Ph.D.	1970

Professional Experience:

Present position: Program Director/Applied Systems

Previous experience: Computer Programmer-Analyst - Connecticut General Life Insurance - 1965-1967

Reading Dynamics Instructor - 1968-1969

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Phi Delta Kappa

New England Research Organization

North East Educational Research Association

American Educational Research Association

Publications:

VITA FORM

NAME: Richard Alrick Gustafson

Professional address/telephone: Santa Clara Center for Planning and Evaluation; 1110 North Tenth Street; San Jose, California (408) 299-3731

Home address/telephone: 1719 Clovis Avenue; San Jose, California (408) 266-5699

Personal Data:

Birthdate: May 15, 1941

Marital status: married Number of children: one

Educational Experience:

School/degree/year:

Boston University	B.A.	1963
Boston University	M.Ed.	1964
University of Connecticut	Ph.D.	1970

Professional Experience:

Present position: Program Associate/Evaluation and Applied Computerized Systems

Previous experience: High School Teacher - Newtown, Connecticut - 1964-1965

High School Teacher - Greenwich, Connecticut - 1965-1968

Researcher, Computer Programmer - Bureau of Educational Resources and Development - 1969

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Publications:

"Factor Analyzing the Iowa Tests of Basic Skills," Psychology in the Schools, in press.

VITA FORM

NAME: Frederick Roland Long

Professional address/telephone: Center for Planning and Evaluation;
1110 North Tenth Street; San Jose, California (408) 299-3731

Home address/telephone: 146 Belridge Drive; Los Gatos, California
(408) 356-9934

Personal Data:

Birthdate: May 22, 1932

Marital status: married Number of children: one

Educational Experience:

School/degree/year: Southwest Texas State B.A.
University of the Americas M.A.
Stanford University Ph.D.

Professional Experience:

Present position: Center Director

Previous experience: Associate Professor - University of Hawaii
Assistant Professor/Political Science and History - University of the Americas
Director - Live Oak Area Service Center of the Economic Opportunity Commission
Chief Administrative Planner, Director of Production - Hawaii Curriculum Center, University of Hawaii
Economic Consultant to U.S. Department of State - Mexico City

(If additional space is necessary, please attach second sheet)

VITA FORM / Page two

Membership in professional societies/associations:

Publications: (selected sample)

A Production Design for the H.C.C. English Project Materials: A Management Information Subsystem for Monitoring Production, University of Hawaii, 1969.

The Cost Analysis of the H.C.C. English Materials, University of Hawaii, 1969.

A.P.E.R.T. Time/Cost Model for Procedures of H.C.C. Materials: A Management Information System, University of Hawaii, 1969.

"Caudillismo," Noticias, 1960.

VITA FORM

NAME: Paul B. Campbell

Professional address/telephone: Department of Public Instruction; Box 911; Harrisburg, Pennsylvania

Home address/telephone:

Personal Data:

Birthdate:

Marital status: Number of children:

Educational Experience:

School/degree/year: Eastern Michigan University B.A. 1950

University of Michigan M.A. 1952

Wayne State University Ed. D. 1965

Professional Experience:

Present position: Director/Office of Educational Research and Statistics

Previous experience: Teacher and principal - elementary schools - 1950-1965

Research Coordinator - K-12 District - 1965-1967

College instructor - Eastern Michigan University Field Services - 1966-1967

Director, Bureau of Educational Quality Assessment - 1967-1970

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VITA FORM / Page two

Membership in professional societies/associations:

American Educational Research Association

National Council for Measurement in Education

Publications: (selected sample)

"School and Self-Concept," Educational Leadership, 1967

With June Slobodian, "Do Children's Perceptions Influence Beginning Reading Achievement," The Elementary School Journal, 1967

With Joan Beers, "Quality Education Assessment Plan,""Pennsylvania School Journal, 1968

With Henry Heusner and June Slobodian, "An Analysis of Eight Different Reading Instructional Methods Used with First Grade Students," Forging Ahead in Reading,

VITA FORM

NAME: Joan S. Beers

Professional address/telephone: Pennsylvania Department of Public Instruction; Box 911; Harrisburg, Pennsylvania

Home address/telephone: _____

Personal Data:

Birthdate: _____

Marital status: _____ Number of children: _____

Educational Experience:

School/degree/year: Wilkes College A.B.

Pennsylvania State U. M.Ed.

Professional Experience:

Present position: Research Associate

Previous experience: Teacher - Harrisburg School District

Guidance Counselor - Lower Dauphin School District

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VITA FORM / Page two

Membership in professional societies/associations:

American Educational Research Association

American Personnel and Guidance Association

Association for Measurement and Evaluation in Guidance

American Statistical Association

Publications:

With Paul Campbell, "Quality Education Assessment Plan," Pennsylvania School Journal, 1968

Phase I Findings, Educational Quality Assessment, Pennsylvania Department of Education, 1968

Phase II Findings, Educational Quality Assessment, Pennsylvania Department of Education, 1970

VITA FORM

NAME: Robert E. Hayes

Professional address/telephone: Department of Public Instruction;
Box 911; Harrisburg, Pennsylvania

Home address/telephone:

Personal Data:

Birthdate:

Marital status: married Number of children: 2

Educational Experience:

School/degree/year: Pennsylvania State University B.A. 1940
Pennsylvania State University M.Ed. 1941
Pennsylvania State University Ph.D. 1961

Professional Experience:

Present position: Director/Research Bureau

Previous experience: U. S. Army Air Corps
Research Bureau/Pennsylvania Department of Education

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VITA FORM / Page two

Membership in professional societies/associations:

Pennsylvania Educational Research Association

Publications:

numerous articles in Journal of Educational Research, Journal of Teacher Education, The Reading Teacher, AV Communication Review, PSEA Journal, and NEA Journal.

Following are the vitae on persons who served as consultants in the design phase of the training project:

- Francis S. Chase, Southwest Educational Development Laboratory
- Matthew N. Cooper, Texas Southern University

VITA FORM

NAME: Francis S. Chase

Professional address/telephone: Southwest Educational Development Laboratory; 800 Brazos; Austin, Texas 476-6861

Home address/telephone: 1524 East 59th Street; Chicago, Ill.; (312) 684-4027

Personal Data:

Birthdate: October 2, 1899

Marital status: married Number of children: three

Educational Experience:

School/degree/year:			
	University of Virginia	B.S.	1927
	University of Virginia	M.S.	1931
	University of Chicago	Ph.D.	1951

Professional Experience:

Present position: Resident Consultant

Previous experience: President - Education Communication Service - 1951-1956

Director - Mid-West Administrative Center - 1950-1957

Dean, Graduate School of Education - University of Chicago - 1958-1956

Chairman - National Advisory Commission for Regional Education Laboratories - 1966-1968

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Previous Experience (continued):

Visiting Professor - Ohio State University, Ontario Institute of Education, University of Texas at Austin - 1968-1969

VITA FORM / Page two

Membership in professional societies/associations:

Publications:

numerous publications in various journals

VITA FORM

NAME: Matthew N. Cooper

Professional address/telephone: Texas Southern University; Houston, Texas; (713) 529-3145

Home address/telephone: 4749 Alvin Street; Houston, Texas (713) 734-6274

Personal Data:

Birthdate: October 29, 1914

Marital status: married Number of children: two

Educational Experience:

School/degree/year:			
	Western Illinois State Teachers College	B.Ed.	1940
	University of Illinois at Champaign	M.A.	1946
	New York University	Ph.D.	1955

Professional Experience:

Present position: Professor and Department Head/Psychology and Guidance

Previous experience: Part-time Private Practice - 1958-present

Contract Psychologist - Houston Independent School District

Contract Psychologist - Texas Education Agency, Vocational Rehabilitation Division

Contract Psychologist - Dickinson Independent School District

Assistant Professor, Associate Professor - Texas Southern University - 1947-1963

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VITA FORM / Page two

Membership in professional societies/associations:

American Association for the Advancement of Science

American Association of University Professors; Texas Assn. of College Teachers; American Psychological Association; Southwestern Psychological Association; Texas Psychological Assn; Texas State Teachers Assn; Texas Personnel and Guidance Association; National Rehabilitation; National Educational Assn. American Educational Research Association

Publications:

With E. W. Rand, Sophomore College Students and the Conversion of Common Fractions, Decimals, and Per Cents, Journal of Negro Education, 1961

With V. C. Kenney, Self-rating of Skin Complexion Among Negroes and Attribution of Selected Characteristics to Pictures," American Psychologist, 1967

Exploring Academic Talents and Abilities, Chatterbox: U.S. Department of Health, Education, and Welfare, 1964.

Appendix D

Glossary of Terms

ACTIVITY - An organized behavior. The term covers many classroom behaviors organized about traditional subject matter, and it often refers to behaviors organized about some other focus.

ASSUMPTIONS - Facts, conditions, or concepts which are taken for granted and subsequently used as a basis for inference.

ATTRIBUTE - A characteristic, either beneficial or detrimental, which is inherent in or closely associated with a specific person or organization.

BEHAVIOR - Broadly, anything that an organism does, including overt, physical action, internal, physiological, and emotional processes, and implicit mental activity. The term can also refer to any observable or measurable activity displayed by a learner.

CATALYST - A person or an organization inducing or expediting change within an educational system, without being a part of the system concerned. The term is frequently used synonymously with 'change-agent.'

COMPONENT - An integral part or subsystem of an educational system. The major components of the Southwest Educational Development Laboratory's learning systems are (1) instructional materials; (2) staff development for teachers and other school staff to insure effective use of instructional materials; (3) parental involvement activities for supporting and reinforcing classroom instruction at home; and (4) means for achieving improved relationships among people, media, equipment, and facilities that will enhance attainment of instructional goals.

COMPUTER ASSISTED INSTRUCTION (CAI) - The technique of using a computer program, together with necessary central and terminal equipment, to aid students in the learning process. The technique usually comprises a form of individualized instruction; most instructional programs are designed to permit each student to progress at his own best rate, and to have the computer keep records of each student's progress and standing.

COMPUTER BASED INSTRUCTION (CBI) - A system for individualization of instruction in which the computer acts as a central control. The concept is a broader and more encompassing one than CAI, and one in which the computer tries to tailor the instruction to the student's needs.

COMPUTER MANAGED INSTRUCTION (CMI) - A method of using a computer, not for instruction of students, but for managerial tasks such as handling performance records, handling curriculum files, grading tests, etc. The method may also include the scheduling of non-computer media and teaching processes by automatic data processing.

CONCEPTUAL DESIGN - Conceptual design, the second stage of the Southwest Educational Development Laboratory's product development process, is concerned with the development of various aspects of the solution

strategy selected in the context analysis stage. The objectives of the conceptual design stage are the identification of various components and elements of the solution strategy and the development of a model of elements and activities sequenced to achieve the objectives of the project. The outcome of this stage should be a document that specifies all aspects of the model with appropriate references and documentation.

CONSTRAINT - A checking or restraining factor in a situation.

CONTEXT ANALYSIS - Context analysis, the first stage of the Southwest Educational Development Laboratory's product development process, is concerned with performing analysis and providing information on any important social problem deemed relevant to the Laboratory's problem focus. The objectives of context analysis are to define the problem, and to identify the strategy or general approach which seems the best. The outcome of this stage should be a document which details the process it entails and sets forth the rationale for strategy selection.

CRITERION (pl. CRITERIA) - A standard, norm, or judgment used as a basis for quantitiative and qualitative comparison.

CRITERION MEASURE - Any means for ascertaining the degree of accomplishment of a product design.

CURRICULUM - A course and/or experience, or a group of courses and planned experiences, which a student has under the guidance of a school and college.

DETERMINANT - A determinant is anything that determines or conditions a situation(s).

DIFFUSION - The process by which people learn about, accept, and then adopt new ideas or products. Diffusion is considered to be a broader term than 'dissemination' or 'installation' of educational data, and has been described as a five-phase process entailing awareness, interest, evaluation, trial, and adoption.

DISSEMINATION - The act of dispersing and spreading educational ideas, information, and products. Dissemination has broader connotations than 'distribution,' but implies responsibility for creating change than does 'diffusion.'

EDUCATIONAL PRODUCT - The intended result of the development process after it has been validated in field test according to predetermined objectives. Strictly speaking, a product must be a marketable entity, but for the sake of simplicity a developmental product is frequently referred to as a 'product' regardless of the stage of development it has attained. A product, developmental or ready for market, can comprise instructional materials, hardware, or software; it can comprise a technique or a process; or it can comprise any combination of the above.

ELEMENT - A testable subdivision of any component of an educational system.

ENTRY LEVELS - That level or stage of knowledge and/or experience that an individual possesses before training or further education commences.

EVALUATION - The utilization of information to make decisions or value judgments.

EXPORTABLE - The capacity that permits a module or educational system to be transported in a self-contained, operatable condition, from one location to another.

FEEDBACK - The process of obtaining information, impressions, and control data from real-life experience and applying them back to the planning stages, and the appropriate initial stages, of development to effect product improvement. Feedback can be used both to refine a specific product and to improve the entire process of product development.

FIELD TEST - The large-scale parallel testing of a working system, taking place under the supervision of a test director and with the participation of the system's originators. The objectives of field test are (1) to determine the ultimate utility and viability of the system under test, and (2) to facilitate marketing and diffusion of the system by measuring its effectiveness, cost, endurance, and potential, and by ascertaining the effects upon the system of the many variables existing in a natural environment. Field test is the fifth stage of the Southwest Educational Development Laboratory's six-stage product developmental process.

FOCUS - The substantive center of an organization's attention or activity. The Southwest Educational Development Laboratory's focus is intercultural education -- an education responsible to the individual and common needs of the diverse cultures of the Southwest.

FORECASTS - Calculations of future conditions or events on the basis of the study and analysis of available pertinent data.

GOAL - A continuing purpose providing direction for an organization. The term is usually broader than, rather than synonymous with, the term 'objective.' A goal is considered to be more long-range than an objective and less exactly stated; hence, the achievement of a goal may involve the attainment of several specific intermediate and/or terminal objectives.

HARDWARE - The physical elements of a system (usually electronic or electric devices) which are utilized in educational processes; the term includes computers, terminals, audio/visual devices, programmed learning devices, etc.

INDIVIDUALLY PRESCRIBED INSTRUCTION (IPI) - A technique of teaching which consists of planning and conducting a program of studies with each student that is tailored to his learning needs and to his characteristics as a learner. It was developed by the Learning R & D Center, University of Pittsburgh, and field tested by Research for Better Schools (RBS).

INNOVATION - The introduction of significant changes which measurably improve the learning process through the creative application of ideas, methods, and devices.

INSTALLATION - The act of placing in position and putting into operation a new course, curriculum procedure, or training device.

LEARNING SYSTEM - See SYSTEM.

LINKAGE - The series of two-way interaction processes connecting user systems with various resource systems in basic and applied research, development, and practice. The term encompasses the extent, variety, and mutuality of the collaborative relationships between the user systems and the resource systems, and the degree of interrelatedness of the systems.

LONG RANGE PLANNING - A process directed toward making today's decisions with tomorrow in mind and a means of preparing for future decisions so that they may be made rapidly, economically, and with as little disruption to the business as possible.

MODEL - A conceptualization representing a real-life situation, or procedure, or ideal technique. A model can take the form of an equation, a graphic analogue, a device, or a narrative sequence.

MODULE - A self-contained system in which the components are functionally assembled to operate as a single unit, or in conjunction with other units.

OBJECTIVE - The aim, end in view, or purpose of a course of action or a belief; an objective is that which is anticipated as desirable in the early phases of an activity and which serves to select, regulate, and direct later aspects of the activity so that the total process is designed and integrated. An objective has definable parameters; it contains clear, precise statements of (1) intended outcome, and (2) minimum requirements, both of which should be measurable. Throughout the development process, product objectives should be reexamined and rewritten as necessary, as not all initial objectives are feasible ones.

PILOT TEST - Pilot test, the fourth stage of the Southwest Educational Development Laboratory's product development process, it usually carried out under controled conditions in selected schools which are in proximity to the Laboratory and is conducted by the originators of the test products. The objective of this stage is to test, evaluate, and amend individual products to improve them and to enhance the potential value of the learning systems in which they will be used. The outcome of this stage should be a product ready to enter field test.

PROCESS - A series of actions or operations leading toward a particular result.

PRODUCT DESIGN - The third stage of the Southwest Educational Development Laboratory's product development process, product design, is concerned with converting all existing research, studies, conceptualization, and specification into an initial version of a developmental product. The objective of this stage is to produce a workable product which incorporates specified elements and which includes enough content of sufficient quality to be ready for testing; the outcome should be a product which is ready to go into pilot test.

PROGRAM - A plan or work organized into a set of interdependent efforts directed toward producing a set of products and procedures which, when used as prescribed with a particular target population, will product specified outcomes. The development of its various learning systems constitutes the program effort of the Southwest Educational Development Laboratory.

PROTOTYPE - A near-final model of a developmental product which is suitable for evaluation of structure and performance, and upon which production of quantities can be based. An educational product is usually in prototype form when it enters field testing. A prototype product is frequently called 'product' for the sake of simplicity.

RESEARCH AND DEVELOPMENT - This term includes basic and applied research and their utilization; in industry and in the professions basic and applied research and development are closely interrelated. Educational development implies the preparation of curricula and materials for improved learning, based upon the findings of basic research.

SKILL - The ability to use knowledge effectively and readily in the execution or performance of a task (or tasks).

SOFTWARE - The data, program, and language constituents of an educational system (as opposed to the hardware elements).

STAGE - A period in, or portion of, the process or sequence of development. The Southwest Educational Development Laboratory's product development process has six stages: (1) context analysis; (2) conceptual design; (3) product design; (4) pilot test; (5) field test; and (6) marketing and diffusion.

STRATEGY - A particular approach to attain a social or educational goal that would be considered an improvement.

SUBSYSTEM - A component of a larger system which can itself be regarded as a discrete system.

SYSTEM - A system is a confluence of interacting components, or subsystems, that carry out a predetermined function cooperatively and in such a way that the relationships of the components to each other and to the whole are clear. A learning system is a system whose function is education; the learning systems now under development by the Southwest Educational Development Laboratory are Language Development and Reading (Bilingual/English-as-a-Second Language), Early Childhood Education, Mathematics/Science Education, and Multicultural Social Education.

SYSTEMS ANALYSIS - A cycle, repeated as necessary, which consists of defining objectives; designing alternative systems to achieve the objectives; evaluating the alternatives in terms of effectiveness and cost; questioning the objectives and any other assumptions underlying the evaluation; and recommending appropriate courses of action, which may include opening new alternatives and/or establishing new objectives.

TRAINING - Training is concerned with the techniques and procedures for modifying human behavior. The practical task of training is to perform certain operations that results in definable changes to specified instructional objectives.

VARIABLE - A characteristic or trait which can exist in different amounts. All variables anticipated to affect the utility and viability of a test product should be incorporated into the test design in such a way that their effects can be isolated and measured. Unforseen variables should be studied as soon as they become apparent during testing.